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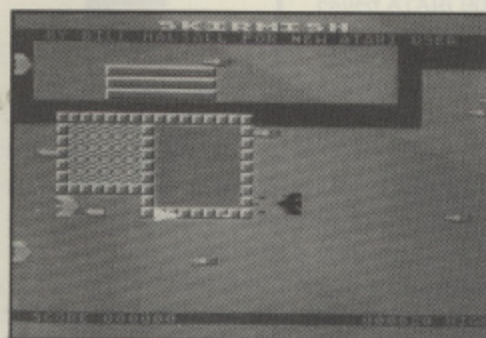
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SUBMISSIONS

PAGE 6 welcomes and encourages its readers to submit, articles, programs and reviews for publication. Programs must be submitted on disk or cassette, articles should wherever possible be submitted as text files on disk. We seek to encourage your participation and do not have strict rules for submissions. If something interests you, write a program or article and submit it! Appropriate payment will be made for all published programs and articles.

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**The next issue of
NEW ATARI USER
will be on sale 24th May**
Editorial copy date is 16th April

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Editorial address: P.O. Box 54, Stafford, ST16 1DR, ENGLAND Tel. 0785 213928: FAX 0785 54355
Editor & Publisher: Les Ellingham - Advertising Sandy Ellingham
Printed by Stephens & George, Merthyr Tydfil 0685 5351 - Page layout by PAGE 6 - Linotron output by The Setting Studio 091 232 1517. Origination by Ebony 0579 47880 - Newstrade Distribution by Diamond Europress, Unit 1, Burgess Road, Ivyhouse Lane, Hastings, E. Sussex TN35 4NR Tel. 0424 430422
NEW ATARI USER is published bi-monthly on the last Thursday of the month prior to cover date

PAGE 6 PUBLISHING's NEW ATARI USER

Editorial

Issue 43
April/May 1990
**'The Magazine for
the Dedicated Atari User'**

ISSN No. 0958-7705

THE CREDITS

All of the usual stuff is on page 3 but here are the people who made this issue possible.

Les Ellingham did the editing, layout and everything else but spent most of the time wondering who decided to only put 24 hours in a day and dreaming of doing things that other people do, like sleeping!

Sandy looked after the advertising and mail order and lots of other things

John R. Barnsley finally became legitimate

Stacey Mitchell (but not for long) messed up the letters page last issue by coming back home. Confused? You will be.

The Regular Contributors, who provide the backbone of the magazine and can generally be relied upon to come up with good articles and reviews, are

Garry Francis
Matthew Jones
John Davison jr
Paul Rixon
Ian Finlayson

Mark Hutchinson
John Davison
John Sweeney
Damon Howarth

All other contributors for this issue are individually credited alongside their articles or programs. Thanks to everybody for sharing their work and enthusiasm with other Atari users.

No messages across the miles this time!

We hadn't quite sorted out the cover picture when this bit was written, but it should be a picture of some planes or helicopters. Whatever it is, the photograph is courtesy of **T.R.H. Pictures**.

Can the inspiration be going? Somehow the amount of music thus far has been minimal. What's happening? Those who did help include Nanci Griffith (as always), Mark Knopfler, Dolores Keane, Joan Baez and a real blast from the past, Horslips. Much of Horslips stuff is now on CD and the magnificent *Book Of Invasions* remains one of the finest albums ever made. Hard to believe it's around 15 years old. Isn't it about time the ISB were on CD? Time to go back to sleep!

**NEW ATARI USER is the magazine.
PAGE 6 is the concept. Wherever you see
PAGE 6 you'll know what it means!**

**The next issue of NEW ATARI USER could
feature YOUR article or program,
so SEND IT IN NOW!**

PAGE 6 shows just what you can do with your Atari. With the exception of final output on a Linotron and use of a repro camera for the listings and photos, the magazine is prepared entirely with Atari based equipment and software - not a Macintosh or IBM in sight! Hardware used includes 130XE, 1050 disk drive, 810 disk drive, 410 cassette (occasionally!), 850 Interface, NEC 8023 printer, 1040ST, SM124 Monitor, Atari SH204 hard disk drive, Cumana 1 meg disk drive, Epson RX100 printer, Kyocera laser printer, Microstuff printer buffer. Software includes Superscript, Turbo Basic, Kermit, PC Intercomm, TARI-TALK, Print Wiz, STWriter, Protext and Fleet Street Publisher. Articles and programs submitted on XL/XE disks are subjected to various custom written programs before being transferred across to the ST via TARI-TALK. All major editing is done with Protext and pages are laid out with Fleet Street Publisher. A disk with the finished pages is sent up to The Setting Studio in Newcastle (a typesetting bureau who really know what they are doing with the ST) to be output on a Linotron 300 and, hey presto, finished pages are sent back. It really does work - at last! All that is left is to drop in the listings and photos. Well, it's not quite as easy as that, but you get the idea!

HARD TIMES?

Who would have thought, round about six years ago, that PAGE 6 might end up as the longest surviving Atari magazine? Well, we are not quite but several magazines have come and gone since we started and it looks as if we may well outlast the two famous American magazines that started it all. About a year ago I lost touch with ANALOG and ANTIC magazines but finally succeeded in getting new subscriptions to both - perhaps just in time? ANALOG started life as a dedicated 8-bit magazine and took the ST on board when it came out, only to succumb to pressure later to separate into two magazines, one for the 8-bit Atari and one for the ST. Producing an ST magazine in the States however does not seem to be the easy option it is in this country and ANALOG soon found themselves in financial trouble. The original owners sold out to a new publisher who tried hard to increase sales on the separate magazines but eventually found that the best solution was to go back to publishing a combined magazine, just as we do. Nowadays it is very difficult to publish a magazine supporting only the 8-bit Atari and that is precisely why we have never considered separating into two magazines. Anyway I received the December/January issue of the recombined ANALOG and was quite impressed, just like the old ANALOG. A splendid 132 pages but only 13 pages of ads, could they possibly survive with such little advertising support? Apparently not, for several of the U.S. User Group newsletters have since reported that the publishers have finally pulled the plug and ANALOG is no more.

ANTIC magazine arrived through the door and was a major shock. This, once fine, monthly magazine has shrunk to a mere 48 pages on very poor quality newsprint and, if you want to subscribe, is only available with a compulsory disk. Again advertising support is minimal and ANTIC are obviously struggling hard to keep faith with the Atari 8-bit community, but the signs don't look too good. ANTIC was the magazine that inspired PAGE 6 and, whilst it is good that we are still going, it does not do my heart good to see one of the best Atari 8-bit magazines fading away.

So what is our own situation? Well we are still here and intend to be for a long time yet but we must be realistic. Sales of ALL 8-bit magazines declined last year and sales of our pre-Christmas issue dropped so that we must soon start looking towards saving some costs. We still have our regular advertisers but not the extra advertising support we have enjoyed in the past and it seems unlikely that many more advertisers will appear. One thing we can do is promote our own products much more and you will notice from past issues that we have begun to do just that. I must admit that I don't like to use too much of the magazine to promoting PAGE 6, that was one of my major criticisms of the old Atari User, but we have to be sensible. If this is the way to survive and prosper then why not? After all, the products and services that PAGE 6 promote are specifically to support the Atari and the day may well come when certain products are only available through dedicated companies like ourselves.

Maybe we will have to cut the number of pages, we considered that for this issue, but if we can expand our other interests we can support the magazine as it stands. That was the prime reason for starting the PAGE 6 ACCESSORY SHOP and providing you continue to give your support there is no reason why we cannot survive and prosper.

DO THEY CARE?

I often wonder whether the major companies really care about the end user. We have tried to seek out a number of products for the Atari 8-bit over recent months and, whilst the products are certainly available, getting them is a nightmare. Several of the offers through the Accessory Shop have been severely delayed, simply because it has been impossible to get the companies supplying the goods to get their fingers out and send them to us. The companies concerned never get any flack, it is us that gets the blame for not supplying and it is extremely frustrating. It seems that the only way to ensure that goods advertised are readily available is to invest in a lot of stock which has to be held for over three months before it can be sold. A costly exercise and one that should not be necessary. If we place an order with a supplier a couple of weeks before a magazine is published and we are assured that the stock is available and will be delivered, is it too much to expect to receive it on time? It seems so. I cannot understand why.

I used to deride all those retailers who advertised games that they could not supply but I am now beginning to understand the problems. Give a little thought before shooting the retailer, he might just be as frustrated as you!

Les Ellingham

THE ATARI SHOW IS ON!

Just as we went to press we learnt that the long rumoured Atari Show is on, at least we think it is! The show will be called ATARI 90 and is being held at The Novotel Hotel, Hammersmith, London on the 1st to 3rd June.

Both floors of the exhibition hall are to be used with the serious stuff upstairs and the games downstairs. We understand that they are not going to let even a 520STFM upstairs! One of the gripes Atari had about the last Atari Show at Alexandra Palace was that the admission price was too high so ATARI 90 will be £2 to get in or £4 for a family ticket, which means that the kids get in free!

All we have to do now is pray that Atari, not renowned for their organisational abilities, can get the show on the road. So far the going hasn't been too good because they booked an advert in this issue of NEW ATARI USER and the following day cancelled it without explanation! Whatever happens, if it's on we'll be there, and we hope to see you all there. It could be a good one.

ROLAND SOUND MODULES

Good news for budding composers who own an Atari ST, or even an XL/XE with a Midi interface, is that Softscan, one of our long term advertising supporters, have set up a dealership for the new Roland CM series Stereo Computer Sound Modules.

The Roland CM is basically a full synthesiser without a keyboard and can be programmed via any computer with a Midi interface. Sound quality is superb and you can create some amazing effects. If you are not talented in the composing field then you can hear what the professionals can do with it, because many of the top ST games now have a professionally written soundtrack for the Roland. The sound and the atmosphere of these games is incredible. The modules are not cheap, starting at £369, but this is around half the price of a comparable synthesiser so it could be well worth a look. Softscan have an advertisement on page 55 in this issue where you'll find more details.

MONITOR NO MORE

We understand that MONITOR, the magazine of the U.K. ATARI OWNERS CLUB, is officially dead. Many people have been wondering what had become of the magazine since the usual long wait between issues got longer and longer during the last year. Apparently several of the people who ran the magazine have left the club, making it almost impossible for the club to continue to publish.

MONITOR was, without doubt, the finest Atari club magazine to have been produced in this country and it will be sadly missed. The club and the magazine had a fine pedigree, being established when the very first Atari 400's hit these shores. It was founded by Maplin Electronics, the very first company to support the Atari, and was taken over by a group of employees who remained working at Maplins and helped the club grow to become the biggest Atari User group in the U.K. The club and magazine were run by enthusiasts, and not for profit, and when most of the key writers and helpers went off to find jobs in other parts of the land, as tends to happen nowadays, the end of the magazine was on the cards.

We believe that subscribers are being offered software from the club library in exchange for any money outstanding on their subscriptions. Sorting out is likely to take some time though so, if you have written, be patient.

AMATEUR RADIO RALLY

The promised mini-Atari show at the National Motorcycle Museum in Birmingham is not taking place due to the organisers failure to get it together in time (their words and apologies). If you really want to go to the National Motorcycle Museum though, why not pop along on Easter Sunday, 15th April, to the Centre of England Amateur Radio Rally for a feast of fun for hackers of all ages and abilities. Whilst not particularly for computers, there will be a few there along with amateur radio and television and more electronic bits and pieces than you are ever likely to find again in one place. If you have any interest in hardware or electronics it may well be worth a visit. Further details can be obtained from the organisers on 0952 598173.

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ENJOYING IT!

When, about three years ago, my 1050 drive died on me I decided not to replace it and invested the money in a ST system. The ST is a superb machine which easily overshadows our office PC and I get great enjoyment from using it and I shall continue to do so for a long time to come.

Last August, for no apparent reason, I decided to resurrect my old 130XE and sent off for one of the new XF551 drives and a copy of MYDOS. When it arrived I set it up and spent half the night getting to grips with the new DOS. Suddenly I had it and I was hooked. The drive is superb with true double density storage but it was not this that got me, it was the sheer joy of using such a friendly operating system on the 130XE after battling so long with the monstrously complex TOS and GEM on the ST.

If only more ST converts would give their old 8-bits an airing, I am sure that they would once again realise what a remarkable machine they have.

Peter J. Kelly
Manchester

That's precisely what we have always said, glad someone agrees.

LONG LINES

I have a 65XE with a data recorder and I am having a lot of problems trying to get a game to work. The one in question is in the August/September issue called Catch Day. I have used TYPO III but on lines 430, 825 and 835 the end of the

line does not come up when I list it. Can you please explain this to me. I have looked at the Atari basic but cannot find a way to go past the beep at the end of line 3 and get the code to match with TYPO III. I am very impressed with the machine and would like any information that will help me.

I. Nutton
Holbeck, Leeds

... Please could you give me some advice concerning the listing for Whist in Issue 32? Line 3800 appears to be too long and is not accepted by the computer, it gives "Error" with a block at the end of the line.

A. Peakes
New Eltham, London

We have had a lot of questions like this recently from new users. The Atari screen editor only allows three physical lines to be typed in on the screen yet the computer can interpret and display lines longer than this. How come? The reason is that the Atari does not store 'keywords' like PLOT, SOUND, POSITION etc. as full words but rather as numerical tokens which it look up on an internal table and it also has very sophisticated syntax checking that works out where spaces should be on a line. Once you know this, you can begin to take advantage of it by using a few tricks when typing in programs. In the majority of cases with lines that end up too long when listed out, the programmer has used abbreviations for keywords such as POS. for POSITION, SO. for sound and GR. for GRAPHICS. If you type these abbreviations they will be accepted and stored with

the appropriate number code but when you list the line, the Atari will look up the code table and substitute the full keyword. If necessary, it will show more than three lines on the screen.

There are several ways to type in long lines. The first is to use abbreviations as shown, the second is to leave out spaces, for example just type 10GR.:FOR I=1TO100, the Atari will space it out. Another trick is to move the left margin of the screen by typing POKE 82,0 before you start typing your program. This will allow you to get another six characters per program line on screen. One problem when using these tricks is that the TYPO codes will not be correct when pressing Return. What you have to do is press Return then LIST the line you have just typed by typing LIST 100 (or whatever) and then use the Control-Arrow keys to move the cursor up and press Return again. If you have typed the line correctly then the correct code will be shown, but if it is wrong then you have a slight problem because if you try to alter the line you will lose the end! The only solution is to use the Control-Delete key to shorten the keywords back to their abbreviations or take out spaces and type in the end of the line again.

All of the lines in printed listings can be typed in, after all someone must have typed them in the first place, you just need to know how to do it!

RESCUE REQUIRED

I have typed in TO THE RESCUE from Issue 42 using TYPO 3 but cannot get line 3110 to match the BU code. I have tried everything on the keyboard that could possibly resemble _____ but nothing works. Could you please tell me what was used so the game can run properly.

Mrs S.M. Gathercole
Nottingham

Control-N

A NEW CASSETTE?

I have an Atari 65XE and an XC12 data recorder but recently the data recorder hasn't been functioning properly. I have been phoning round to try and find a new one but with no success. As I desperately need a new unit, could you recommend anyone who might have some in stock?

Adam Robertson
Stockport

We don't know of any particular retailer who might have cassette decks in stock but suggest that you give a chap called Derek Fern a ring on 021 353 5730. He has all sorts of weird and wonderful things for 8-bit Ataris.

FS2 AND XF551

I read in your magazine that Flight Simulator II is not compatible with the XF551 disk drive. I am keen to buy FS2 but I own the XF551 and so I was wondering whether any solution had been found which would make the simulator run with my disk drive. I have heard how good it is and I would hate to have to miss something special.

Bryan Zillwood,
Southampton

You certainly are missing something special! The reason that FS2 won't work with the XF551 is due to the copy protection which, we believe, checks the speed of the drive. The older Atari drives run at 288 rpm but the XF551 runs at 300 rpm. On the 810 and 1050 drives there is a small pot which affects the drive speed and it can easily be adjusted but the XF551 does not appear to have this so you can't slow the drive down. There would appear to be two solutions - either a modification which would allow the XF551 to be slowed down (if this is indeed the problem) or a software patch that could zap the FS2 disk so that it

does not bomb out after the copy protection fails to recognise the drive. Someone must know the solution to this problem. Has anyone produced a patch to modify the copy protection on FS2 to work on the XF551? If so send it in to us and we can modify reader's disks for them. Has anyone modified the XF551? Again send in the details, there are hundreds of frustrated users who would benefit.

DRIVING YOU MAD

I am a complete novice regarding computers, however I was lucky to acquire an Atari 65XL/XE plus several back issues of PAGE 6. I read the XL/XE manual and thought OK I can handle this but when I tried to type in all the listings and DATA and RUN I got error after error (17 at line 20 - Syntax ??). Having no idea what a SYNTAX was (and still don't) I decided to tape the listings on an audio tape ("Very simple") - place cassette in recorder (Hi-Fi) plug in mike, then read DATA statements aloud onto tape. Play back through headphones, no need to read and type simultaneously. I have become a computer maniac overnight (I blame Atari - the Commodore 64 is in the bin). If you don't reply to my correspondence, don't worry, I will still await the next PAGE 6 with anticipation, trepidation (computerisation).

R. Hunter
Glasgow

P.S. I am a 35 year old coach driver who works all day and night and play my computer XL/XE on my coach through a 5 inch TV screen and voltage adapter while sitting in my bus awaiting my patrons. Hope to hear from you (probably won't).

Now do you think we could possibly make this up? What does it all mean? Probably that you should be careful if catching a bus in Glasgow!

THE BREAK KEY

I am having a few problems with my programming. To protect my programs I might have to disable all of the keys! How might I disable the Break Key and keep the rest of the keyboard? And one more thing how can I disable the Reset key so it won't clear the memory but will not respond?

Olly Pope
Dorking

Disabling the Break key is quite easy. Just add a subroutine as follows
POKE 16,64:POKE 53774,64
This is reset however every time a GRAPHICS command is issued so you need to GOSUB to the subroutine each time you change graphics modes. Trapping the RESET key is more difficult and involves a machine code routine. We published a routine many years ago but it does not work on the XL/XE machines. This is a relatively easy routine for a machine code programmer to write, how about someone sending us a new one?

GARRY ... GARRY

Please tell us readers what has happened to Garry Francis. I used to really enjoy reading his superb adventure column. I see that you dropped his name from the regular contributors and then put it back. Has he sold his Atari? Did it blow up? Was it pinched? I fear the worst.

John E. Liever
Salford

For new readers, Garry Francis wrote some of the best adventure columns ever published in any Atari magazine but has been sadly missed now for many a long year. Rumour has it that his Atari was eaten by a dingo but we did hear from him a while ago saying 'I will be back'. I am only publishing this to make him feel even more guilty!

ONE MORE THING

I have been an Atari owner for about 7 years and subscribe to New Atari User. I write my own utility software in machine code and I have recently purchased an ISP Plate. With this came problems ... double density and 1050 density.

How can I format in machine code using double and 1050 density? How can I format the above with sector skew? How can I read double density and skew formats? Do I read 1050 density in the same way as single density? How can I load a machine code file which has an FMS on its sectors? Where can I get 3 ring binders from? How do the Basic SAVE and LOAD commands work? Where can I get MAC 65 from?

Neil Parker
Southwick

P.S. How can I erase variables from the variable table in Basic or Turbo Basic?

You can get MAC/65 from Frontier Software at P.O. Box 113, Harrogate, N. Yorks HG2 0BE. As for the rest of your questions ... well, er ... pass. Can anyone else help?

LOSING TYPO?

Please can you advise me how I can protect TYPO 3 from clearing down when RESET is accidentally pressed, mostly by my grandchildren's sticky fingers!

K. Edwards
Runcorn

Although it ceases to work when RESET is pressed, TYPO remains in memory. All you need to do is type A=USR(1536) and when you type in another line the TYPO code will reappear. Maybe if someone writes a reset routine, as mentioned above, it could be incorporated in a new version of TYPO?

GOODBYE, OLD FRIEND

John S Davison takes a last look at one of the best programs ever for the 8-bit Atari

Regular readers will know that Sublogic's Flight Simulator II (FS2) is my all-time favourite computer program. Imagine my horror then, when I heard that Sublogic had lost interest in 8-bit software and had destroyed all their remaining stocks of the 8-bit version!

Then the good news arrived - Page 6 had managed to snatch a few copies from the jaws of destruction for its readers! But what's this? Not only are Page 6 selling this superb flight simulator, but also a whole bunch of scenery disks never before seen in the UK. In fact, there are several available which Sublogic hadn't even bothered to announce, including most of those out on the ST! Sadly, there are only a few of each scenery disk available, so it's a case of first come, first served. Copies of the basic FS2 simulator are, however, slightly more plentiful, so it's probably still not too late to get one of these.

I reviewed FS2 in Issue 21, so don't intend reviewing it all over again, but I would like to remind you what it's all about. Then it's up to you whether to pass up the last opportunity of buying the king of flight simulators for your beloved 8-bit machine.

SETTING THE STANDARD

Even today FS2 still sets the standard by which all flight simulation programs

are judged. In its 8-bit version it simulates a Piper Cherokee Archer II, a popular single engined light aircraft, and does so very, very accurately. Its author, Bruce Artwick, used 47 of the basic flight characteristics of that aircraft in building the simulation model, and his care and attention to detail shows everywhere. It's so accurate that people who have learned to fly it have often developed the taste for real flying and have gone on to earn their Private Pilot's Licence. In the next issue I'll be writing about a man who did exactly this, so stay tuned!

FS2's graphics are excellent, particularly the aircraft's instrument panel. This shows all the instruments you'd find in a real light aircraft - and they all work just like the real thing! One of its most fascinating aspects is its full range of radio navigation aids. Again, they all work just as in real life, enabling you to accurately navigate under Instrument Flight Rules (e.g. in bad weather). You can even land the aircraft in poor visibility at airfields equipped with Instrument Landing System.

You view FS2's world through the cockpit windscreen, and you see an accurate three dimensional graphic representation of the real world. The basic FS2 package provides scenery data for wide areas surrounding New York, Chicago, Seattle, and Los Angeles, with over eighty real-life airfields to fly from and to. Also, you'll find roads, rivers, lakes, mountains, and other geographic detail equally accurately located - just check them on any map

if you don't believe me! Naturally, the graphics here aren't as stunning as on the ST, but this is of secondary importance in a program of this type.

The scenery is designed as an extendable database, and that's where the scenery disks come in. By keying location parameters into the FS2 editor you can position yourself anywhere in FS2's world, and if you've placed the appropriate scenery disk in your disk drive the program will



load it in and use it in place of the standard scenery.

CLOUD FLYING

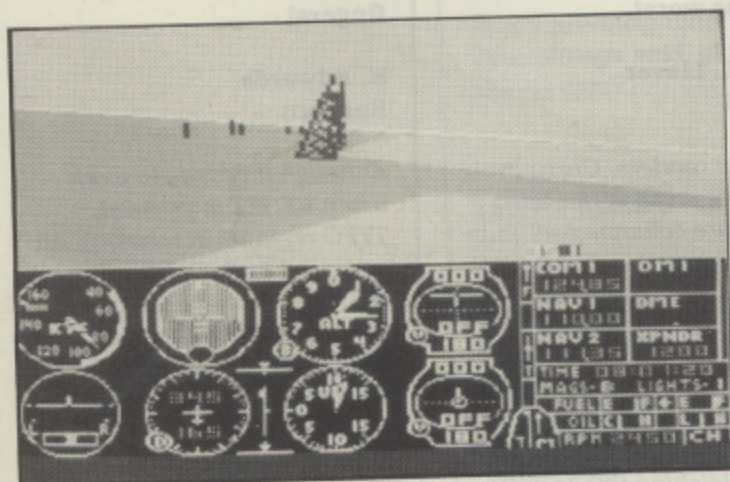
The editor also lets you set weather conditions (clouds and winds), time of year, and time of day, so if you want a real challenge you could fly in thick cloud and high winds at 2:00am on a winter's morning! It also lets you enter the program's "World War One Ace" game mode in which you get to fly a WW1 biplane to shoot down enemy aircraft and bomb ground targets!

The 8-bit version still stands up well when compared with that on the ST. Admittedly the ST has much better graphics, additional scenery as standard, fancy external viewing facilities, and the option of flying a Learjet as well as the light aircraft, but underneath it's still basically the same concept. Don't expect whizbang arcade action as that's NOT what it's about. What you will get is accurate representation of aircraft flight that's never been bettered on the 8-bit machines.

I hope that's whetted your appetite. Flight Simulator II is a rare classic which simulation fans will be proud to own. Page 6 is giving you your last chance ever to acquire it, and is also throwing in a free FS2 book to help you get the most out of it. So, you 8-Bitters, you know what to do - call Page 6 soon to reserve yourself a piece of legendary 8-bit software before it flies off into the sunset forever.

HOME BREWED FS2 SCENERY?

Richard Martin of Acton, London has asked me a question probably in many peoples' minds. Has anyone deciphered the format of scenery data and produced their own scenery, perhaps using software they've written themselves? If you know of something please contact me (care of Page 6) and I'll publicise anything useful that turns up.



FLIGHT SIMULATOR II

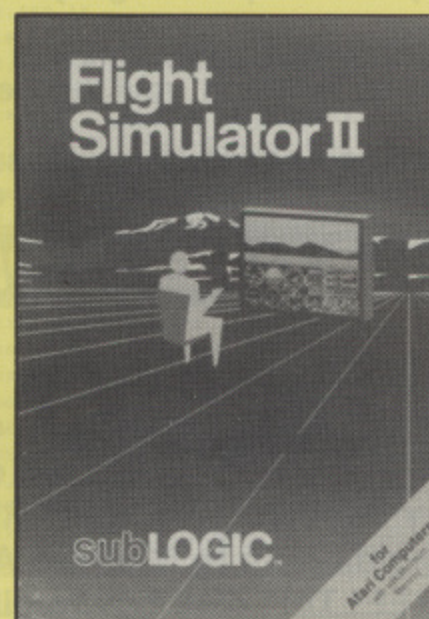
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VERIFY

by
Phil
Cardwell

Atari BASIC lacks one major function that, with the unreliability of the data recorders and cheap tapes, is sorely needed for cassette users - being able to verify a CSAVED program. How many times have you CSAVED a program that has taken hours to type in only to find that it hasn't recorded properly? Just once is enough but now you don't have to worry at all for this small routine will verify a CSAVE leaving your program intact in memory.

Type in the listing, checking each line with TYPO 3, then CSAVE a copy. When you RUN the program insert a blank cassette, and an autoboot file will be created. The file is loaded in the usual machine-code manner by holding down START and switching on the computer followed by pressing RETURN.

When you want to type in a program boot this tape first and then run TYPO 3 if you wish. When you are ready to save, CSAVE your program, re-wind the cassette, press play and type A=USR(1825).

After hearing the single beep, press RETURN and the verify process will start. If this is successful, 'Verified OK' will appear, otherwise 'Verify Error!!!' appears in which case you should try CSAVEing the program again. Whatever happens, your program will remain in memory until you have succeeded in saving a working copy.

The routine will remain in memory for use with other programs until the computer is switched off and it leaves page 6 free for other uses such as TYPO 3.

```

EH 0 REM *****
GX 1 REM # CASSETTE VERIFY #
LD 2 REM # by #
ZX 3 REM # Phil Cardwell #
TB 4 REM #
EM 5 REM *****
JW 6 REM # NEW ATARI USER - APRIL 90 #
EO 7 REM *****
NN 8 REM
NO 9 REM
VF 100 RESTORE 1000:FOR A=0 TO 104:READ B
:POKE 1536+A,B:NEXT A
TT 110 OPEN #1,0,120,"C:"
LC 120 POKE 050,11
EI 130 POKE 052,0:POKE 053,6
PK 140 POKE 056,105:POKE 057,0
TF 150 H=USR(ADR("HHHLLVV"),10)
LJ 160 CLOSE #1
OE 170 END
ZX 1800 DATA 0,2,0,7,13,7,169,60,141,2,21
1,24,96,169,105,141,231,2,169,7,141,23
2,2,169,13
MI 1910 DATA 133,2,169,7,133,3,24,96,104,
162,112,169,3,157,66,3,169,4,157,74,3,
169,120,157,75
DZ 1920 DATA 3,76,57,7,67,50,0,169,54,157
,68,3,169,7,157,69,3,32,86,220,162,112
,169,7,157
IX 1930 DATA 66,3,169,253,157,68,3,169,3,
157,69,3,169,120,157,72,3,169,0,157,73
,3,32,86,220
FA 1940 DATA 16,224,140,174,7,162,112,169
,12,157,66,3,32,86,220,169,3,141,15,21
0,172,174,7,192,136
EW 1950 DATA 240,12,192,1,240,0,169,7,160
,159,76,170,7,96,169,7,160,147,76,170,
7,96,66,101,114
LY 1960 DATA 105,102,105,101,100,32,79,75
,155,66,101,114,105,102,121,32,69,114,
114,111,114,33,33,155,0
TL 1970 DATA 76,103,101,133,150,132,149,7
6,175,7
    
```

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DISPLAY LISTS

a tutorial by Andrew Weir

Anyone who has ever written a game in BASIC will know that the visual effects achievable with the standard graphics commands are not particularly spectacular. In this article some of the unknowns of Atari graphics will be revealed - be warned, however, that machine code routines will be lurking in every corner! A reasonable knowledge of BASIC, though, will get you quite a long way.

Atari computers are unusual in that they do not have one CRTC chip, but two custom ICs, called ANTIC and GTIA, which together maintain the video display. GTIA apparently stands for George's Television Interface Adapter, incidentally. The fact that there are two chips means a) that the Atari machines have quite extensive graphics facilities (for 8-bit machines) and b) pretty graphics can be difficult to achieve, since there are forty-eight registers to think about. But don't be discouraged yet (there will be time for that later). We'll take one topic at a time. Let's start with the old favourite, Display Lists.

ATARI'S CUSTOM CHIPS

Before starting any programming, it might be as well to try to define the functions of the two graphics chips. GTIA, as far as the programmer is concerned, is there mainly to deal with player/missile graphics. ANTIC could almost be described as a microprocessor; it has a variety of functions, the main one being to process a set of display 'instructions' which determine exactly how data to be displayed actually appears on the screen. This 'program' is the Display List. It resides in user memory, length depending on the current graphics mode. Note that the list is in RAM (it's actually copied from ROM by the OS), so it can be changed with POKEs. Before reading further, take a look at a Display List. Type GR.2, then:

```
DL=PEEK(560)+PEEK(561)*256
FOR E=DL TO DL+23: ? PEEK(E): NEXT E
```

all in immediate mode. Stop the numbers from scrolling too fast with CTRL-L. The numbers you see are instructions, executed consecutively by ANTIC, to produce a screen which we refer to as Graphics 2. Locations 560 and 561, in case you're wondering, point to the start of the Display List (this vector is set up on a mode change, and is user-alterable).

So what do these instructions mean? The first three numbers in the list (112) each tell ANTIC to display eight blank scan lines. A scan line is the thinnest horizontal line the computer - and the TV - can deal with. Since the display is non-interlaced, there are only 312 of these altogether. Of these, 192 are usable.

The next three numbers tell ANTIC that the rest of the display will access video memory (more details later), and also that there is to be one Graphics 2 line (that is, sixteen scan lines) at the top of the display. There are then a few 7's which indicate

more lines of Graphics 2, and finally a jump instruction (the last three bytes) which marks the end of the Display List and tells ANTIC to start at the beginning of the list when the next frame is to be displayed.

CHANGING THE DISPLAY

So what happens when one of the instructions is changed? Try it. Type (while still in Graphics 2, and with 'DL' still a usable variable):

```
POKE DL+6,6
```

then try printing text at the top of the screen; you should find that, although most of the screen is the usual Graphics 2, the second line down shows text in Graphics 1 size. The POKE replaced a 7 (the instruction to display a line of mode 2) with a 6 (the instruction to display a line of mode 1). Try POKEing other numbers (from 0 to 15) into this location, and observe the effect. You should find that the numbers you POKE bear no relation to the mode number which appears on the screen. For some unfathomable reason, the mode instructions were designated as follows:

GRAPHICS MODE

ANTIC MODE

0	2
*	3
12	4
13	5
1	6
2	7
3	8
4	9
5	10
6	11
14	12
7	13
15	14
8,9,10,11	15

Intrigued? If you've understood everything so far, you should be. What's that asterisk doing beside ANTIC mode 3? The fact is, Antic mode three has no equivalent BASIC mode - but don't get too excited. Antic mode three must surely be one of the most useless features ever incorporated into a graphics chip (which is probably why Atari didn't bother making it accessible from BASIC). Anyway, in case you're interested, Listing 1 gives you an Antic 3 screen. What you get is a Graphics 0 screen with each character ten scan lines in height instead of eight - which might at first sound rather useful. Not so. Remember a character is defined by eight bytes, so two of those ten scan lines cannot be defined. What actually happens is that the top


```

E5 0 REM *** LISTING 2 ***
MI 1 REM 1 line mode 0, lots of mode 8,
CM 2 REM and 75 lines mode 15...
CZ 3 REM all mixed up ...
NJ 4 REM
NG 10 GRAPHICS 8+16
MH 20 DL=PEEK(560)+PEEK(561)*256:REM Start
    of display list
MJ 30 POKE DL+3,64+2:POKE DL+123,2:REM Two
    lines of GRAPHICS 8
LQ 40 FOR E=DL+124 TO DL+198:POKE E,14:NE
    XT E:REM 75 lines GRAPHICS 15
KW 50 COLOR 1:PLOT 5,0:DRAWTO 5,191:REM draw
    a line to show what's been done
LG 100 GOTO 100

```

```

FL 0 REM *** LISTING 3 ***
QI 1 REM Simple DLI; changes the
OV 2 REM background colour of a mode
QX 3 REM 0 display halfway down the
QH 4 REM screen...
NK 5 REM
EU 9 DATA 72,169,8,141,10,212,141,24,208,
    104,64
LA 10 FOR E=1536 TO 1546:READ D:POKE E,D:
    NEXT E:REM read in DLI data
UR 20 GRAPHICS 0:DL=PEEK(560)+PEEK(561)*2
    56:REM Mode 0 and find start of DLIST
JX 30 POKE DL+16,2+128:REM one mode 0 lin
    e and enable DLI on that line
ZO 40 POKE 512,0:POKE 513,6:REM point to
    start of DLI service routine
MD 50 POKE 54286,192:REM enable all DLIs
BE 70 REM
BF 80 REM
YI 100 REM *=$600
VQ 110 REM PHA                ;save A
ME 120 REM LDA #8              ;grey,luminance 8
JN 130 REM STA 54282           ;wait for h. sync
GM 140 REM STA 53272           ;store colour
IQ 150 REM PLA                ;pop A
OD 160 REM RTI                ;return
UV 170 REM ,END               ;that's all folks!

```



```

GE 0 REM *** LISTING 4 ***
JW 1 REM 128 colours on GR.7 screen
SG 2 REM awkward to use and set up but
XE 3 REM it's about the only method
JE 4 REM possible in modes 8,9-11,14,15
NK 5 REM
KG 6 DATA 72,138,72,174,88,2,206,88,2,208
    ,5,169,96,141,88,2,141,10,212,189,255,
    125,141,22,208,189
WJ 7 DATA 95,126,141,23,208,189,191,126,1
    41,24,208,184,178,184,64,0,0,0,0,0,1
    84,169,59,141,34
UT 8 DATA 2,169,6,141,35,2,96,72,189,192,
    141,14,212,169,226,141,34,2,169,192,14
    1,35,2,184,188,34,2
NO 9 REM
UM 10 FOR E=1536 TO 1614:READ D:POKE E,D:
    NEXT E:REM read in M/code
PZ 30 GRAPHICS 7+16:DL=PEEK(560)+PEEK(561
    )#256:REM find start of DLIST
MV 35 POKE DL+2,112+128:POKE DL+3,77+128:
    FOR E=6 TO 99:POKE DL+E,13+128:NEXT E:
    REM modify DL
MG 40 POKE 600,96:POKE 512,0:POKE 513,6:X
    =USR(1583):REM initialise counter and
    DLI vector,start VBI
DS 50 COLOR 1:FOR E=0 TO 159 STEP 5:PLOT
    E,0:DRAWTO E,95:NEXT E:REM draw some l
    ines to show what's happening
GN 60 FOR E=0 TO 95:POKE E+32256,E:NEXT E
    :REM loads a colours!
TO 70 GOTO 70
TW 90 REM *** VBI ***
IZ 100 REM #=1583
NI 110 REM PLA ;initiate VBI
SD 120 REM LDA #59
HN 130 REM STA 546
LY 140 REM LDA #6
YO 150 REM STA 547 ;hi of int. vector
XG 160 REM RTS ;go back to BASIC
RM 165 REM
MH 170 REM PHA ;save accumulator
II 180 REM LDA #192 ;enable DLI's
XL 190 REM STA 54286
JL 200 REM LDA #226 ;change interrupt
VQ 210 REM STA 546 ;vector back to
RH 220 REM LDA #192 ;what it should be
ID 230 REM STA 547
JB 240 REM PLA ;then continue
GY 250 REM JMP (546) ;with int. routine
DR 260 REM .END
RB 270 REM
CE 280 REM *** DLI ***
RF 290 REM
JK 295 REM #=1536
OS 300 REM PHA ;save the
LN 310 REM TXA ;accumulator and
TI 320 REM PHA ;X register
SY 330 REM LDX 600 ;location 600
WC 340 REM DEC 600 ;counts from
RM 350 REM BNE OK ;96 down to
DG 360 REM LDA #96 ;zero
CU 370 REM STA 600
PQ 380 REM OK STA 54282 ;M5YNC
XL 390 REM LDA 32255,X ;600 is also
GK 400 REM STA 53270 ;used as an
UC 410 REM LDA 32351,X ;index to tables
ZX 420 REM STA 53271 ;for the three
LX 430 REM LDA 32447,X ;colour reg's
TK 440 REM STA 53272
HA 450 REM PLA ;restore the
ZF 460 REM TAX ;CPU registers
HK 470 REM PLA
TZ 480 REM RTI ;and return
DZ 490 REM .END

```

Listing 4

```

GX 0 REM *** LISTING 5 ***
IT 1 REM Provides up to 128 colours on
PP 2 REM a graphics 7 screen (ooh!)
NI 3 REM
FU 5 DATA 72,138,72,174,11,212,142,10,212
    ,189,241,125,141,22,208,189,81,126
QP 6 DATA 141,23,208,189,177,126,141,24,2
    08,184,178,184,64
KY 10 FOR E=1536 TO 1566:READ D:POKE E,D:
    NEXT E:REM DLI data
EM 20 GRAPHICS 7+16:DL=PEEK(560)+PEEK(561
    )#256:REM Find DLIST
AZ 30 POKE DL+2,112+128:POKE DL+3,64+13+1
    28:FOR E=6 TO 99:POKE DL+E,13+128:NEXT
    E:REM Modify Dlist
QP 40 POKE 512,0:POKE 513,6:POKE 54286,19
    2:REM DLI vector and enable DLIs
IS 50 COLOR 3:FOR E=0 TO 95:PLOT 60,E:DRA
    WTO 94,E:NEXT E:REM do some lines...
ZC 60 FOR E=32256 TO 32256+95:POKE E+192,
    (E-32256)*2:NEXT E:REM and pretty colo

```

```

URS
KF 70 GOTO 60:REM easy, innit?
BF 80 REM
BG 90 REM
YI 100 REM #=$600
GH 110 REM PHA ;save reg's
MK 120 REM TXA
FL 130 REM PHA
XU 140 REM LDX 54283 ;Get VCOUNT
RD 180 REM STX 54282 ;M5YNC
AZ 190 REM LDA 32241,X ;Use VCOUNT as
BO 200 REM STA 53270 ;an index - note
QJ 210 REM LDA 32337,X ;that the top
XZ 220 REM STA 53271 ;mode line is at
HC 230 REM LDA 32433,X ;VCOUNT=16,
OC 240 REM STA 53272 ;not zero.
HE 250 REM PLA
OD 260 REM TAX
VJ 270 REM PLA ;get registers
TZ 290 REM RTI ;and return
DG 300 REM .END

```

Listing 5


```

BG 0 REM *** PAGE FLIPPING ***
IV 1 REM Flips four simple graphics 2
YN 2 REM 2 screens by changing the
TT 3 REM LMS address. A bit pointless
ED 4 REM in mode 2 with such a simple
TY 5 REM design, but page flipping does
OF 6 REM come into ist own when you're
NP 7 REM dealing with hi-res screens.
NO 9 REM
GU 10 FOR N=0 TO 6 STEP 2
BK 20 GRAPHICS 2:REM to clear the screen
HX 30 POKE 88,0:POKE 89,80+N:REM 05 scree
n pointer; 4 screens 512 bytes apart
AH 40 POSITION 0,3:? #6;" *****
"
HY 50 ? #6;" * SCREEN ";N/2+1;" *
AM 60 ? #6;" *****
KO 70 NEXT N
BF 80 REM
BG 90 REM
TI 100 GRAPHICS 2
MO 110 DL=PEEK(560)+PEEK(561)*256:REM fin
d ddisplay list
SD 120 FOR N=0 TO 6 STEP 2:REM and do the
same loop,except...
AB 130 POKE DL+4,0:POKE DL+5,80+N:REM thi
s time it is the LMS address which get
s altered
OL 140 FOR D=1 TO 250:NEXT D:REM wait
HZ 150 NEXT N
MO 160 GOTO 120

```

Listing 6

boundary, a new LMS instruction is required. Hence mode 8 (which uses 8k of screen memory) has a second LMS instruction halfway down its Display List.

The technique of storing two instructions in one byte is used a lot in Display Lists; one can only assume it is a leftover from the era of 4-bit microprocessors (anyone remember 4-bit processors!). It can be awkward, but works well enough.

Now, look back at the mode table. Two numbers (0 and 1) are missing from the 'Antic' column. They are not mode numbers; 0 is one of a set of instructions to insert blank lines:

VALUE	NO. OF BLANK LINES
0	1
16	2
32	3
48	4
64	5
80	6
96	7
112	8

and 1 is the Antic JUMP instruction. It is always used in conjunction with a LMS instruction (64, remember?) and an address. Thus at the end of a Display List you may see a sequence such as:

65 32 156

which tells Antic that it should jump back to 39968 (32+156*256=39968) and continue execution from there. Normally, of course, the address will be that of the beginning of the Display List. In some instances a jump is required in the

middle of a Display List, if the list is about to cross a 1k boundary (another 4-bit throwback), although it is unlikely that you will come across such a problem.

You may be wondering, incidentally, what use a 'blank line' instruction has. This will become clear later.

THE TROUBLES BEGIN

So far, then, everything's hunky-dory. Well, not quite. Although at first glance it might appear that modes can be mixed at will, there are restrictions and rules. The most fundamental of these is that the total number of scan lines displayed must be equal to (or close to) 192. Blank line instructions can be used to fill out a small screen (see program 1 for an example). A large screen (say 200 scan lines) can usually be accommodated, but if there are too many lines the picture starts to squirm.

Then, you must make sure that the modes you are mixing all use the same number of bytes per line. If you are not used to the screen format of Atari machines, I must digress slightly at this point to explain.

Information on a screen (that is, characters or graphics - nothing to do with Display Lists now) is held in an area of memory structured as a two-dimensional array. On a Graphics 0 screen, the array is 40x24, so there are 40 bytes per line - obvious really, since there are 40 columns on a Graphics 0 screen, with each character using one byte. With graphics screens, however, it is sometimes not quite so obvious. On a Graphics 5 screen, for instance, you have 80 pixels across, with each pixel using a quarter of a byte. So, here there are 20 bytes per line. To save you working all this out each time you construct a custom Display List, here are the relevant data:

MODE	NO. OF BYTES
3,4	10
1,2,5,6,14	20
0,7,8,9,10,11,12,13,15	40

If you mix modes in combinations other than those shown in the table, you still get the screen you expect, but you will not be able to use PLOT and DRAWTO properly, since the screen gets shifted about at the mode line boundaries.

There are also problems with colour. Whatever mix of modes you select, the OS will not be able to cope with your mixture; there is a variable DINDEX (location 87) which the OS uses to work out whether a cursor is out of range, whether a particular colour is allowable, etc. DINDEX contains the BASIC mode number (not an Antic number) of the current screen, and is given an appropriate value by the OS on a mode change. Obviously, no one value will fit a custom screen, and you will find yourself having to deal with, for instance, out-of-range errors when (as far as you are concerned) you are still on the screen. The obvious solution is, of course, not to use any OS commands (PLOT, COLOR, DRAWTO, etc.) and POKE anything you want to appear on the screen. Yes, it's a bit of a pain, but sometimes it's all you can do.

SOME SOLUTIONS

If this all seems a bit nebulous, try typing in Listing 2. As it stands, this mixes modes 0,8 and 15. Note that these three modes all use the same number of bytes per line, so the screen is properly aligned (if nothing else). But take a look at the line which is drawn down the left side of the screen. It seems to be what you'd expect; the line is interpreted as a character on the mode 0 sections, and appears in the usual colours on the mode 15 and mode 8 sections. But now change the colour of


```

KK 0 REM *** COARSE SCROLLING ***
FS 1 REM Not much use, especially in
LP 2 REM BASIC, but demonstrates a
LY 3 REM technique which must be
KG 4 REM mastered before fine scrolling
FT 5 REM can be attempted.
NO 9 REM
LP 10 GRAPHICS 0
WD 20 DISP=40960:REM where screen memory
    will be
HJ 30 DL=PEEK(560)+PEEK(561)*256
EJ 40 DHI=INT(DISP/256):DLO=DISP-(DHI*256
    ):REM Work out lo,hi bytes of DISP
BJ 50 POKE DL+4,DLO:POKE DL+5,DHI:REM and
    POKE them into the LMS address
LV 60 DISP=DISP+40:REM Move one line
HD 70 FOR E=1 TO 25:NEXT E:REM wait
SH 80 GOTO 30

```

```

QX 0 REM *** ONE-LINE SCROLL ***
OO 1 REM If you are intending to make
ZY 2 REM only part of your own screen
MK 3 REM scroll, this demo shows that
OU 4 REM it can be difficult to
DR 5 REM think out; the VSCR0L register
MQ 6 REM actually scrolls TWO lines.
AJ 7 REM one line has been changed to
MO 8 REM mode 12 to make things clearer.
NO 9 REM
ZW 10 GRAPHICS 0:DL=PEEK(560)+PEEK(561)*2
    56:POKE 752,1:REM cursor off
CJ 20 POKE DL+15,4+32:REM fine scroll on
    line 10
WP 25 POSITION 15,10:?"QWERTY"
XI 26 POSITION 15,11:?"QWERTY"
EL 30 FOR E=0 TO 7
KM 31 FOR F=1 TO 50:NEXT F
OC 40 POKE 54277,E:REM VSCR0L register
HJ 50 NEXT E
QO 60 FOR E=7 TO 0 STEP -1
KP 61 FOR F=1 TO 50:NEXT F
YQ 70 POKE 54277,E
HM 80 NEXT E
SI 90 GOTO 30

```

Listings 7 and 8

the line to colour 2. The entire line disappears; not just the mode 8 section. You would certainly not expect a result in mode 0 or mode 15. The problem is that the OS thinks that it's dealing with a mode 8 screen - and colour 2 is not allowed in mode 8. But POKE to the lower half of the screen (e.g., POKE 38243,54) and there are the colours! The problems can sometimes be overcome by POKEing DINDEX with a suitable value, or selecting a different mode to start with. But in this case, if DINDEX were given the value 15, you would not be able to PLOT or DRAWTO the right-hand half of the mode 8 section! You really can't win, unless you keep swapping the value in DINDEX; occasionally this will work.

If you're not too fed up already, you can try illustrating the other problem. Change the twos in line 30 of program 2 to sixes (mode 1 - twenty bytes per line). The display becomes shifted in places. There is actually a kludge you can use to fix

this; add the line:

```
31 POKE DL+6,6:POKE DL+122,6
```

and you should find that everything is evened out again. The extra lines add more mode 1 lines, such that two consecutive Graphics 1 lines use up 40 bytes. If you don't mind modifying your planned screens like this to fit in with the OS, it can ease the programming problems.

Looking back on what I've written so far, it seems as if it's all more trouble than it's worth. The thing to do is experiment. Some combinations work well, some have to be modified a little to make them acceptable to the OS. In any case, we've covered quite a lot of ground in rather a small volume of text. Look at the DATA statements in the Antic mode 3 program (the items of data make up the new Display List) and pick out for yourself all the points that have been discussed.

MORE INTERESTING DISPLAYS

Now that the basics have been covered, we can start on the esoteric stuff. Let's begin with Display List Interrupts.

You have no doubt heard of and possibly used a Vertical Blank Interrupt; this is where the processor uses the time left between drawing one frame and another to carry out some task other than that defined by the main program. It is also possible to generate an interrupt during the frame scan period; in fact, you can generate one interrupt at the end of each line. This might appear to be an incredibly powerful feature, but although you can achieve some nice effects using these Display List Interrupts, there is a major drawback; your interrupt routine has an extremely short time in which to execute. Usually there is only enough time to execute a dozen or so instructions. Another problem is that there is only one DLI vector (512/3), so each DLI has to change the vector to point to the next interrupt service routine to be executed.

Setting up a simple DLI, though, is surprisingly simple. Just add 128 to the mode instruction of the line where you want the interrupt to occur, place the low byte of your interrupt routine address into 512, and the high byte into 513, then POKE 54286,192 to enable Display List Interrupts. One of the most common uses of a DLI is to change a colour part way down a screen. Program 3 is an example of such a routine.

You have no doubt gathered by now that it's time for the machine code; the source code for the interrupt service routine is given in the REM statements, and needs some explaining. Note first of all that before the routine does anything, it must store any registers it is about to use, since the main program will want them back afterwards. The easiest way of storing registers is to push them onto the stack; since only the accumulator is being used here, we only have to include a PHA. And, of course, we have to pop the accumulator off the stack at the end of the routine (PLA).

The main part of the routine loads the accumulator with a colour value and stores it in colour register 2. Note, though, that before the colour register is changed, the accumulator is stored to 54282 - called WSYNC by the Atari designers. The actual value stored here is unimportant; what the operation actually does is cause the processor to halt and then restart a fixed number of machine cycles before the end of the line. WSYNC is, by the way, one of ANTIC's registers.

Notice also that it is the hardware colour register which is altered, not the shadow register. This ensures that only the lower half of the screen appears in the second colour; the hardware register is updated from the shadow register (706) during every vertical blank. As an exercise, try modifying the program to change to the international character set halfway down the screen. Hint: you need only change three bytes. The hardware register shadowed by 756 is 54281.


```

JU 0 REM *** LISTING 9 ***
JN 1 REM Fine scrolling, professional
HR 2 REM style! up or down (POKE 0 or 1
KS 3 REM into 602) fast or slow (601).
FO 4 REM Might require modification to
UV 5 REM work in modes other than 0.
MV 6 DATA 8,72,173,89,2,208,5,104,40,76,2
    26,192,238,88,2,173,88,2,205,89,2,240,
    5,104,40,76,226,192,169
NV 7 DATA 0,141,88,2,173,90,2,240,35,238,
    91,2,173,91,2,201,8,208,57,169,0,141,9
    1,2,173,36,156,24,105
AB 8 DATA 40,141,36,156,173,37,156,105,0,
    141,37,156,76,105,6,206,91,2,173,91,2,
    201,255,208,22,169,7,141,91
SE 9 DATA 2,173,36,156,56,233,40,141,36,1
    56,173,37,156,233,0,141,37,156,173,91,
    2,141,5,212,104,40,76,226,192
LP 10 GRAPHICS 0
HI 20 DL=PEEK(560)+PEEK(561)*256
HK 30 FOR E=6 TO 27:POKE DL+E,34:NEXT E:P
    OKE DL+3,98
FS 35 REM If you want to scroll another a
    rea of memory,POKE DL+4 and DL+5 with
    the appropriate address at this point
LD 40 FOR F=1536 TO 1651:READ D:? D:POKE
    F,D:NEXT F:REM don't omit the '?D'!!!
CI 50 POKE 600,0:POKE 601,5:POKE 602,1:PO
    KE 546,0:POKE 547,6:REM reset counter,
    speed 5,direction down,start VBI
YU 60 END
BF 80 REM
YI 100 REM *=$600
TZ 120 REM PHP ;store flags
RC 140 REM PHA ;and acc.
IW 160 REM LDA 601 ;speed
UO 180 REM BNE DOVBI ;return if 0
GU 200 REM PLA
NH 220 REM PLP
BC 240 REM JMP 49378
BI 260 REM DOVBI INC 600 ;here if not
CX 280 REM LDA 600 ;only do rest
WR 300 REM CMP 601 ;of VBI if

```

Listing 9

```

FR 320 REM BEQ CONT ;speed=(600)
HD 340 REM PLA
VL 360 REM PLP ;otherwise
IL 380 REM JMP 49378 ;return
MU 400 REM CONT LDA #0 ;if not
YK 420 REM STA 600 ;reset 600
PE 440 REM LDA 602 ;and go in
QE 460 REM BEQ BACKW ;appropriate
UE 480 REM INC 603 ;direction
UQ 500 REM LDA 603 ;do fine
EF 520 REM CMP #0 ;until 0 done
RQ 540 REM BNE aldn
FG 560 REM LDA #0 ;then alter
UP 580 REM STA 603 ;the LMS
LB 600 REM LDA 39972 ;address
DL 620 REM CLC
JU 640 REM ADC #40
CD 660 REM STA 39972 ;{add 40}
SD 680 REM LDA 39973
FR 700 REM ADC #0
AH 720 REM STA 39973
JB 740 REM JMP aldn ;and end...
RF 760 REM BACKW DEC 603 ;other dir-
NA 780 REM LDA 603 ;section
BQ 800 REM CMP #255
YE 820 REM BNE aldn ;count from
WK 840 REM LDA #7 ;7 to 0 fine
EQ 860 REM STA 603
RO 880 REM LDA 39972
BH 900 REM SEC ;then do
MG 920 REM SBC #40 ;one coarse
OH 940 REM STA 39972 ;scroll
SC 960 REM LDA 39973
LV 980 REM SBC #0
NC 1000 REM STA 39973
LH 1020 REM aldn LDA 603 ;all done
YG 1040 REM STA 54277 ;so store
NC 1060 REM PLA ;603 in the
IY 1080 REM PLP ;VSCROL reg'r
BU 1100 REM JMP 49378 ;and return
GE 1120 REM END
IK 1140 REM

```

Program 3 is a very simple example; nevertheless, this type of program is necessary when using some mode combinations on screen. For instance, if you mix mode 0 and mode 1, the mode 0 line appears in a different background colour to the mode 1 line. This can be easily overcome by altering the colour registers just before the mode boundary.

KEEPING TRACK

If DLIs have been enabled on more than one line, the interrupt routine will usually have to know which line it is on. One way of doing this is to set 54286 (the NMI enable register) during the vertical blank. This ensures that the DLIs start running at the exact moment at which the electron beam starts scanning at the top of the screen. Listing 4 shows how such a method

can be used to give an extended range of colours in mode 7. Alternatively, the DLI can use Antic's VCOUNT (Vertical line counter) register, which holds the scan line count divided by two. Obviously this is not of much use in Graphics 8 if an interrupt occurs on every line, but it can be used to good effect in other modes, as program 5 shows, and allows a more elegant colour swap routine to be constructed. Both listing 4 and listing 5 can be incorporated into your own programs, perhaps to produce multicoloured title screens or similar graphic displays.

Notice, incidentally, that VCOUNT holds the number zero at the top of the screen, not the top of the display area. This means that if you are counting lines using this register you will have to subtract as shown in listing 4 to get a meaningful value.

The rest is really up to you. A DLI need not be used to create

visual effects; it can be used, for instance, to process data from an input device where such processing would be inconvenient to incorporate into the main program. I once used two DLIs to update two co-ordinate registers using input from a trakball.

MORE ADVANCED TECHNIQUES

Now let's move onto something different. Remember the old LMS instruction? I implied that the address it provides need not be the same as the screen start address, 88/89. This is because the two values have slightly different meanings; that stored in 88/89 is used exclusively by the OS for DRAWing, PLOTting, and so on. The address stored in the Display List tells ANTIC which part of memory will actually appear on the screen. Thus it is possible to place a design in one section of memory while actually displaying another, by altering the pointers appropriately. It is also possible, by the same technique, to flip rapidly between pre-constructed screens to achieve animation, etc.

Program 7 flips between four Graphics 2 screens, to show how it is done in practice. Remember to change the second LMS instruction if you want to flip 8k screens using this method. This 'page flipping', as it is called, is not really as useful as some programmers make it out to be - mainly because of the huge amounts of memory required to swap a reasonable number of screens. Also the flipping usually needs to be done during the vertical blank to avoid glitches appearing on the screen. In any case, the point of discussing all this was to demonstrate the fact that ANTIC can actually display any area of memory you care to direct it to. The reason for this will become clear in a moment when we discuss screen scrolling techniques.

SCROLLING UP

We'll begin with vertical scrolling, since this is the easiest type to understand. On less advanced machines, scrolling is achieved by moving an area of memory through the screen RAM. With the Atari, however, the screen memory is moved through the user memory; a subtle difference in description, but the latter is infinitely more simple to do than the former. Program 7 demonstrates how it is done in practice; here the screen memory is moved through the ROM, 40 bytes at a time. Most of the program is concerned with doing trivial calculations; it is the two POKES in line 50, modifying the address pointed to by the LMS instruction, which actually effect the scrolling.

It isn't very impressive, is it? Part of the problem, of course, is that the display itself isn't exactly inspiring, and secondly, the scrolling is jerky; this type of scrolling is referred to as coarse scrolling. In addition, the display flickers every so often; this is caused by incorrect timing, and is one of the problems associated with using BASIC for manipulating the screen.

SMOOTHING IT OUT

To achieve a fine scroll, two things must be done. First, each mode line instruction of the Display List must have the value 32 added, the instruction to enable vertical scrolling. Secondly, the VSCROL (54277) register must be altered. This register should be POKEd with a number from 0 to 15 to tell ANTIC how many scan lines to fine scroll. This register affects every line on which fine scrolling is enabled. In practice, since VSCROL can only be used to move the display through 15 scan lines, the programmer would arrange for his scroll routine to move the display through eight scan lines (for modes such as 0, with 8 scan lines per mode line), then coarse scroll

```
UZ 0 REM *** LISTING 10 ***
TE 1 REM Horizontal scrolling. A very
XG 2 REM simple case, in BASIC so
DP 3 REM display flickers like crazy.
BA 4 REM Notice that in this case the
MA 5 REM display list is completely
UO 6 REM re-written, and it's easier to
UC 7 REM put it out of the way in page 6
YH 8 REM and POKE 560,561 accordingly.
NO 9 REM
VW 10 DATA 112,112,112,71,112,158,7,7,7,7
      ,87,0,6,87,64,6,71,212,158,7,7,7,7,65,
      92,158
CK 20 DIM A$(64),B$(64)
SW 30 A$="" * THIS IS L
      INE 1 *":REM 20 spaces
DG 40 B$="" * THIS IS L
      INE 2 *":REM ditto
KB 50 FOR E=0 TO 37
JO 60 POKE 1536+E,ASC(A$(E+1,E+1))-32
PH 70 POKE 1536+64+E,ASC(B$(E+1,E+1))-32
AU 80 NEXT E:REM 40 to 70 read the two st
      rings into 1536-1573 & 1600-1637
TO 90 GRAPHICS 2+16
AS 100 FOR E=0 TO 25:READ D:POKE 1664+E,D
      :NEXT E:REM read new display list into
      top half of page 6
AZ 110 POKE 560,128:POKE 561,6:REM and te
      ll the ANTIC that it's there
TH 120 FOR E=7 TO 0 STEP -1:POKE 54276,E:
      FOR F=1 TO 10:NEXT F:NEXT E:REM fine-s
      croll one character width
RO 130 L01=PEEK(1675):L02=PEEK(1678):REM
      The two low bytes of the two relevant
      LMS instructions
EH 140 L02=L02+1:L01=L01+1:IF L01=39 THEN
      L01=0:L02=64:REM Add one and start ov
      er if necessary
WI 150 POKE 1675,L01:POKE 1678,L02:REM an
      d put 'em back again
QX 160 GOTO 110:REM go back for more...
```

```
WO 10 REM *** LISTING 11 ***
LW 11 REM Non-standard mode demo; a
FR 12 REM mix of mode 1 and mode 10
OU 13 REM What happens is that two
NE 14 REM pixels are grouped into one,
FA 15 REM giving 4x8 characters
NR 16 REM instead of 8x8.
FJ 20 GRAPHICS 2:POKE 623,128:POKE 559,0
HY 30 ? #6;"a":REM 2nd lower case 'a' a
      nd upper case 'A' are inverse
MA 40 ? #6;"b":REM as above
UI 50 ? #6;"c":REM ditto
YE 60 FOR E=705 TO 712:POKE E,14:NEXT E:P
      OKE 559,34:REM All colour registers se
      t to bright white
IF 70 FOR E=1 TO 6:READ D:FOR F=1 TO 350:
      NEXT F:POKE D,0:NEXT E:REM set colour
      registers to zero one by one
GA 80 DATA 705,706,707,709,711,712
```

Listings 10 and 11

through one mode line, simultaneously resetting VSCROL. Before we modify program 7 for fine scrolling, take a look at program 8, which fine-scrolls just one mode line, to demonstrate how VSCROL is used. Incidentally, VSCROL is a register in ANTIC, and since ANTIC decodes the processor R/W line in much the same way as an address line, the register does not behave like a normal memory location; you can POKE to it, but you can't read meaningful values from it. This is a 'feature' common to most of the I/O chips.

But back to listing 8. You have probably found that there is nothing wrong with the scrolling but, again, the screen flickers. This gets worse when we start moving the LMS address around as well, and the only solution, unfortunately, is to alter the registers during the vertical blank.

PUTTING IT TOGETHER

Program 9 is the all-singing, all-dancing vertical scrolling program. There is an up/down register (601) and a speed register (602) which you can POKE to achieve the effect you want. As it stands it scrolls through the standard mode 0 screen (that is, from address 40000), but you can easily adjust it as shown to scan through any other area; thus you can use fine scrolling in your own programs without even having to know what's going on.

... AND DOING IT SIDEWAYS

Now for horizontal scrolling - probably one of the most effective display manipulation techniques. Here you need to add 16 to the Display List mode line instruction, and HSCROL (54286) is the one to alter to achieve fine scrolling. Horizontal scrolling is a little more complicated than vertical scrolling in that the screen has to be effectively split into many separate screens, with an LMS on each line. The reason for this may not be immediately obvious, but imagine shifting a one-dimensional memory array through a two-dimensional screen; you should be able to see that this would result in a wraparound rather than a scrolling effect. Study listing 10, which shifts two lines, each 64 bytes long. Notice where in memory the LMS instructions are pointing; the two lines are stored as if they are to be printed on a screen 64x12 instead of 20x12. Of course, only twenty of the sixty-four bytes actually appear on the screen at any one time; the two LMS addresses are incremented to produce the scrolling effect. Note that both LMS instructions have to be altered together.

If it's difficult to see quite what's going on, imagine moving a window along several long printed parallel paper strips; this provides a useful illustration of the process.

Because there are so many different effects based on horizontal scrolling, it is not possible to give a general-purpose program which can deal with all of them, so you are really on your own. But, if you have a reasonable knowledge of machine code, you should have no real problems. Remember; each line must be defined separately and pointed to by a separate LMS instruction. Also note that the HSCROL register scrolls one 'colour clock', the width of TWO mode 8 pixels. This means that to move, say, a Graphics 0 character one space to the left, you change HSCROL by four (not eight).

BOTH WAYS AT ONCE

And if you can master all that, you can probably master anything. You might like to try scrolling a screen diagonally; this involves adding 16 and 32 to the DL instruction, and arranging your memory diagonally; it is rather difficult to visualise a diagonal screen mapped as a one-dimensional data

set, and even more difficult to put a design on a diagonal chunk of memory. However, if you can get it to work, the effect can be most impressive, as demonstrated by games such as Zaxxon.

MORE TRICKS

That's really all there is to know about Display Lists. But there are still one or two more tricks, which, though not really anything to do with Display Lists, ought to be mentioned.

Now, you might think that a total of seventeen modes is impressive for a machine as ancient as the Atari, but what is often kept a secret is that you can not only combine different lines of each mode, but you can also (to some extent) roll two modes into one.

To explain this, let's go back to the beginning of this series - remember the Antic 15 paradox? Modes 8,9,10 and 11 all have the same ANTIC mode number. When you select a GTIA mode (so called because they are only available if the GTIA chip is fitted - the first Ataris had CTIA, a less sophisticated IC), what actually happens is that the OS sets up the Display List for mode 8, then alters location 623. This register is normally associated with player/missile graphics, but the upper two bits are used to select mode 9 (%01xxxxxx), mode 10 (%10xxxxxx) or mode 11 (%11xxxxxx). The interesting part comes when you start using Display Lists other than the one for mode 8.

This is one of those things best discovered by experiment, since there are 42 possible mode/POKE combinations - most of them completely useless. Listing 11 demonstrates the general technique, with a Graphics 12-type display with seven colours instead of four. Incidentally, the most interesting modes can be 'invented' by starting with a text mode rather than a graphics mode.

Try substituting different mode numbers and POKE different values to 623, until you get a mode you might find useful.

OTHER INTERRUPTS

To conclude this article, I think a word about Vertical Blank Interrupts is required. There are many occasions where it is necessary to manipulate information on the screen without causing flickering or other glitches. A VBI is a short program to which the CPU switches during the period when the display is doing effectively nothing. The screen is re-drawn every 1/50th of a second, and a VBI can occur at the end of each frame.

The OS already uses some of the Vblank time for its own purposes (updating hardware registers from shadow registers, reading joysticks etc). When the interrupt occurs, the OS executes a JMP through 546/7. Normally this vector points to the OS service routine, but it can be changed to point to your own interrupt routine. Of course, any user routine must terminate with a JMP to the address normally held in 546/7.

While the screen is being drawn, a second interrupt routine can be executed, the deferred VBI. This is vectored through 548/9, and is executed after an immediate VBI, if the function of the main program is not of a time-critical nature (the deferred interrupt would not, for example, be executed during disk I/O).

Program 12 contains an example of a VBI. All it does is slowly increase and decrease the colour 2 register to give the 'pulsing' effect often used on game loading screens.

A VBI has a much longer time period than a DLI in which to execute; an immediate VBI gets about 4000 machine cycles (that's about enough time for 1000-2000 instructions), and a deferred interrupt has about five times that. This means you can execute fairly complex procedures and not cause any reduction in the speed of the main program.


```

TR 7 DATA 8,72,206,255,6,208,44,173,254,6
,141,255,6,173,253,6,240,18,238,197,2,
173,197,2,201,12
ES 8 DATA 208,23,169,0,141,253,6,76,51,6,
206,197,2,173,197,2,201,4,208,5,169,1,
141,253,6,40
MK 9 DATA 104,76,226,192,104,169,8,141,19
7,2,169,0,141,253,6,162,6,160,0,169,6,
32,92,228,96
SA 10 GRAPHICS 0:SETCOLOR 2,0,0
RW 20 FOR E=1536 TO 1612:READ D:POKE E,D:
NEXT E:LIST
WU 30 POKE 1791,2:POKE 1790,2
OJ 40 X=USR(1592):END
BD 60 REM
BF 80 REM
IC 100 REM *=1536
PC 120 REM PHP ;save status
IW 140 REM PHA ;and acc.
RS 160 REM DEC 1791 ;timer
VQ 180 REM BNE OK
DQ 200 REM LDA 1790
MZ 220 REM STA 1791
YL 240 REM LDA 1789 ;check up/down
NZ 260 REM BEQ DOWN
DI 280 REM INC 709 ;count up
ZJ 300 REM LDA 709
YP 320 REM CMP #12 ;colour=12
VK 340 REM BNE OK

```

```

RV 360 REM LDA #0 ;yes,change
BF 380 REM STA 1789 ;up/down reg'r
ZO 400 REM JMP OK ;and end
ZA 420 REM DOWN DEC 709 ;count down
ZS 440 REM LDA 709
RV 460 REM CMP #4
TD 480 REM BNE OK ;usual stuff
JC 500 REM LDA #1
RL 520 REM STA 1789
DA 540 REM OK PLP ;end-get status
KS 560 REM PLA ;and acc.
AX 580 REM JMP 49378 ;return
FE 600 REM END
QV 620 REM
QZ 640 REM
RD 660 REM
JT 680 REM *=1592
GZ 700 REM PLA
GP 720 REM LDA #0 ;initial colour
IK 740 REM STA 709
JC 760 REM LDA #0
BJ 780 REM STA 1789 ;up/down reg'r
ZO 800 REM LDX #6 ;hi
FZ 820 REM LDY #0 ;lo
AB 840 REM LDA #6 ;code for VBI
WP 860 REM JSR $E45C ;SETUBV
TA 880 REM RTS
FH 900 REM END
QY 920 REM

```

Listing 12 - the final one!

DISPLAY LISTS

The short program stored at 1592 is used to initiate the VBI, and needs a little explanation. Normally to change a vector you simply POKE the two bytes in question. However, when dealing with an interrupt, there is always the possibility that the change will occur just as the interrupt is being serviced; when this happens the machine tends to crash. The normal method of changing a vector is to store the high byte of the interrupt service routine in the X register, the low byte in the Y register, and the vector number in the accumulator, then call SETVBV - a special routine written to set the vector in a controlled manner. The code for an immediate interrupt is 6, that for the deferred interrupt is 7. Numbers 1-5 are for system timers 1 to 5, incidentally.

And that's it. What is perhaps a noticeable omission is a mention of player-missile graphics - well, there you are, I've just mentioned them. But seriously, since these have been covered in Page 6 recently, it seems pointless to go over it all again. In any case, getting to grips with Display Lists should keep you happy for a good while yet.

TYPING IN THE LISTINGS FROM NEW ATARI USER AND GETTING THEM RIGHT!

You will notice that the program listings in NEW ATARI USER have a two letter code before each line. This code is used by our typing checker TYPO 3 - a program designed to ensure that you can type in program lines with no mistakes whatever. You can type in the listings as they stand - you don't type in the code - but we strongly recommend that you use TYPO 3 to check your work.

TYPO 3 is published from time to time in the magazine but if you do not have an issue with the listing in, you can obtain a copy by sending us a large stamped addressed envelope. Alternatively send £1.50, payable to PAGE 6, and we will send you a tape or disk with the TYPO 3 program ready to run and with full instructions for use. Please be sure to state whether you require disk or tape.

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MODIFIED HEXSAVER

Having normally used the ANALOG magazine machine code loader program I was pleased to see Nick Higgs superb Hexsaver program which can be easily amended to produce boot tapes or binary disk files loaded and run from basic.

Although I have taken the liberty of altering Nicks original line length from 40 to 48 I have done this purely to save 20% of the space required to print the data lines. In other respects I have confined amendments to those necessary.

The listing contains the amendments to the Hexsaver program. LIST the lines to disk. LOAD a copy of the original Hexsaver program and ENTER the new listing to produce the completed program. SAVE accordingly.

The program initially runs like the original Hexsaver but you are also prompted to input the run address of the binary file and the title of the final program. After the basic data program has been listed to disk the program will produce the disk load and run program which will also be listed on disk. The listings produced will be similar to those used previously in New Atari User i.e. Listing 1 to produce the boot tape/binary disk file and Listing 2 to load and run the binary disk file. I have added the extenders .L1 and .L2 which I normally use for such purposes together with .OBJ for the final binary file. Amend these as you wish taking care not to overwrite any original files especially your object code file which might have the same extender.

PROGRAM EXPLANATION

The program loads your original code and writes a 43 byte boot tape header in front of it. The final 3 bytes of the header form a JMP instruction to the run address of your file. The load address (which is calculated from bytes 3 and 4 of your original disk file header) is brought forward to accommodate the boot tape header and write over the original 6 byte disk header. If your file has been SAVED by the Assembler Editor Cartridge or assembled by the Atari Macro Assembler or MAC/65 the program should work satisfactorily. If for any reason the original file header bytes 3 and 4 do not contain the original load address the program will not work properly.

The sub-routine at 700 calculates the length of the file and the number of 128 byte records needed for the boot tape load. Hexsaver then generates the number of 48 byte lines needed. The program produced when RUN loads the machine code into a string which is printed to tape or disk as required. Please note that by adding the amendments to Hexsaver and using a full length string in this way uses up more memory than the original so I have reduced the maximum file length from 20000 to 8k, which should be more than adequate for a type-in program of this type, unless readers are willing to forego more normal pursuits like eating and sleeping!

If you want longer programs or prefer AUTORUN.SYS files then simply use Nick's original program to provide New Atari User with some much needed top class programs.

by Bill Halsall

```

EH 0 REM *****
IC 1 REM *          HEXSAVER 2          *
NZ 2 REM *    Amended by Bill Halsall    *
QG 3 REM * from original by Nick Higgs *
TB 4 REM *
EM 5 REM *****
JW 6 REM * NEW ATARI USER -   APRIL 90 *
EO 7 REM *****
NM 8 REM
NO 9 REM
JN 10 DIM INFILE$(20),OUTFILE$(20),PROGFI
    LES$(20),LINE$(48),DISKLOAD$(20),LINEOU
    T$(96),MC$(42),B5$(20),TITLE$(48)
TC 15 DIM C$(2)
JW 20 FOR A=1 TO 42:READ DA:MC$(A,A)=CHR$
    (DA):NEXT A
HA 30 DATA 104,162,16,104,157,69,3,104,15
    7,68,3,169,7,157,66,3,169,128,157,73,3
AW 40 DATA 169,0,157,72,3,32,86,228,162,1
    6,189,73,3,133,213,189,72,3,133,212,96
NR 50 LINEOUT$(1)=CHR$(0):LINEOUT$(96)=CH
    R$(0):LINEOUT$(2)=LINEOUT$:B5$(1)=CHR$
    (30):B5$(20)=CHR$(30):B5$(2)=B5$
IL 60 TRAP 80:POKE 764,44
OI 70 ? CHR$(125);CHR$(29);CHR$(29);" INP
    UT  FILENAME : D:";B5$(1,2);:INPUT #16
    ;INFILE$:OPEN #1,4,0,INFILE$:GOTO 90
WL 80 GOSUB 590:GOTO 60
BU 90 TRAP 110:POKE 764,44
MZ 100 ? :? " OUTPUT FILENAME : D:
    .L1";B5$(1,13);:INPUT #16;OUTFILE$:OP
    EN #2,8,0,OUTFILE$:GOTO 120
SN 110 GOSUB 590:GOTO 60
PD 120 TRAP 590
GI 130 POKE 764,44:?"44 FINAL PROGRAM'S"
    :? " OUTPUT FILENAME : D:          .OBJ"
    ;B5$(1,14);:INPUT #16;PROGFILE$
PK 132 TRAP 132:?" ? "INPUT RUN ADDRESS (
    IN DECIMAL)";:INPUT RA
HY 136 TRAP 136:?" ? "INPUT TITLE OF PROG
    RAM ":INPUT TITLE$
GU 140 FOR A=1536 TO 1682:READ DA:POKE A,
    DA:NEXT A
CA 150 DATA 104,104,133,205,104,133,204,1
    04,133,207,104,133,206,169,255,141,145
    ,6,160,0
ZX 160 DATA 140,146,6,238,145,6,173,145,6
    ,201,48,208,1,96,172,145,6,177,204,32
NA 170 DATA 66,6,172,146,6,173,143,6,145,
    206,208,140,146,6,173,144,6,145,206,20
    0
CU 180 DATA 140,146,6,76,23,6,141,130,6,4
    1,240,74,74,74,141,143,6,173,130
UH 190 DATA 6,41,15,141,144,6,173,143,6,3
    2,131,6,141,143,6,173,144,6,32,131
BX 200 DATA 6,141,144,6,169,0,133,212,133
    ,213,168,24,165,212,113,204,133,212,16
    5,213
UT 210 DATA 105,0,133,213,200,192,48,208,
    238,96,1,201,10,144,4,24,105,55,96,24
YH 220 DATA 105,48,96,48,49,48,80

```



```

CS 230 DIM A$(8192):A$(1)="":A$(8192)="
":A$(2)=A$
BK 240 ? "++LOADING";INFILES
XQ 250 LN=USR(ADR(MC$),ADR(A$)+37):TRAP 4
0000:GOSUB 700
UZ 260 GOSUB 390
FS 270 LINE=990:POS=-47
BL 280 LINE=LINE+10:? "WRITING LINE ";LIN
E
JJ 290 ? #2;STR$(LINE);" DATA ";
RN 300 LINE$(1)=CHR$(0):LINE$(48)=CHR$(0)
:LINE$(2)=LINE$
BG 310 POS=POS+48:POS1=POS+48:IF POS1>LEN
(A$) THEN POS1=LEN(A$):LINE$=A$(POS,PO
S1):GOTO 360
LT 320 LINE$=A$(POS,POS1)
HU 330 CHKSUM=USR(1536,ADR(LINE$),ADR(LIN
EOUT$))
AU 340 ? #2;LINEOUT$;" ";STR$(CHKSUM)
PM 350 GOTO 280
IA 360 CHKSUM=USR(1536,ADR(LINE$),ADR(LIN
EOUT$))
QH 370 ? #2;LINEOUT$(1,((POS1-POS+1)*2));
" ";STR$(CHKSUM)
CB 380 GOSUB 900:END
DJ 390 ? #2;"10 REM ***";TITLE$;" - LISTI
NG 1***"
WG 392 ? #2;"12 REM"
YY 394 ? #2;"14 REM BOOT TAPE/OBJECT COD
E FILE MAKER - BASED ON HEX
SAVER BY NICK HIGGS"
YO 396 ? #2;"16 REM"
WM 400 ? #2;"20 DIM LINE$(96),A$(8192):LI
NE=990:CNF=-48:TRAP 100:GOSUB 200"
TR 410 ? #2;"30 A$(1)="";CHR$(34);"0";CHR$
(34);"A$(8192)="";CHR$(34);"0";CHR$(34
);"A$(2)=A$"
QT 420 REM
ID 430 ? #2;"40 LINE=LINE+10:CNF=CNF+48:R
EAD LINE$,CHKSUM:? ";CHR$(34);"CHECKIN
G LINE ";CHR$(34);"LINE"
YM 440 ? #2;"50 CHK=USR(1536,ADR(LINE$),A
DR(A$)+CNF)"
OT 450 ? #2;"60 GOSUB 300:GOTO 40"
OC 460 ? #2;"100 IF PEEK(195)<>6 THEN ? "
;CHR$(34);"ERROR ";CHR$(34);"PEEK(195
);CHR$(253):END"
KV 462 ? #2;"110 ? ";CHR$(34);"WORKED OK"
?";CHR$(34);"TRAP 100"
OP 463 ? #2;"120 ? ";CHR$(34);"(D)ISK OR
(T)APE";CHR$(34);"GOSUB 180:IF K=68 T
HEN 140"
XP 464 ? #2;"130 ? ";CHR$(34);"READY CASS
ETTE AND PRESS RETURN";CHR$(34);"OPEN
#1,8,128,";CHR$(34);"C";CHR$(34);
QZ 465 ? #2;"GOTO 160"
TD 466 ? #2;"140 ? ";CHR$(34);"READY DISK
AND PRESS RETURN";CHR$(34);"GOSUB 18
0:IF K<>155 THEN 140"
VY 467 ? #2;"150 OPEN #1,8,0,";CHR$(34);P
ROGFILES;CHR$(34)
YV 468 ? #2;"160 ? #1;A$(1,";FIN;"):CLOSE
#1:END"
FI 469 ? #2;"180 CLOSE #1:OPEN #1,4,0,";C
HR$(34);"K";CHR$(34);"GET #1,K:CLOSE
#1:RETURN"
EM 470 ? #2;"200 FOR A=1536 TO 1658:READ
D:POKE A,D:NEXT A:RETURN"
DM 480 ? #2;"210 DATA 216,104,104,133,204
,104,133,203,104,133,206,104,133,205,1
69,0,141,127,6,141"
KI 490 ? #2;"220 DATA 128,6,160,255,140,1
25,6,140,126,6,173,126,6,201,47,208,11
,173,127,6"
CE 500 ? #2;"230 DATA 133,212,173,128,6,1
33,213,96,172,125,6,200,140,125,6,177,
203,32,111,6"

```

```

EQ 510 ? #2;"240 DATA 10,10,10,10,141,123
,6,172,125,6,200,140,125,6,177,203,32,
111,6,24"
TX 520 ? #2;"250 DATA 109,123,6,172,126,6
,200,140,126,6,145,205,24,109,127,6,14
1,127,6,173"
EI 530 ? #2;"260 DATA 128,6,105,0,141,128
,6,76,30,6,96,201,58,144,4,56,233,55,9
6,56,233,48,96"
WJ 540 ? #2;"300 DLNE=PEEK(184)*256+PEEK(
183)"
EI 550 ? #2;"310 IF LINE<>DLNE THEN ? ";C
HR$(34);"LINE ";CHR$(34);"STR$(LINE);
";CHR$(34);"MISSING";CHR$(34);"END"
LR 560 ? #2;"320 IF CHKSUM<>CHK THEN ? ";
CHR$(34);"ERROR IN DATA AT LINE ";CHR$
(34);"STR$(LINE):END"
LV 570 ? #2;"330 RETURN"
ZR 580 RETURN
VF 590 TRAP 590:POSITION 2,18:? "ERROR !"
IW 600 IF PEEK(195)=162 THEN ? "ERROR DIS
K HAS NO FREE SECTORS"
CD 610 IF PEEK(195)=165 THEN ? "ERROR IN
ABOVE FILENAME CHARACTERS"
VV 620 IF PEEK(195)=169 THEN ? "ERROR DIS
K MORE THAN 64 FILES"
MP 630 IF PEEK(195)=170 THEN ? "ABOVE FIL
E NOT FOUND"
MU 640 POSITION 2,22:? "HIT ANY KEY AND T
HEN TRY AGAIN"
PK 650 POKE 764,255:CLOSE #1:CLOSE #2
JQ 660 IF PEEK(764)=255 THEN 660
XA 670 POKE 764,255
ZS 680 RETURN
AF 700 LA=ASC(A$(40,40))+256*ASC(A$(41,41
))
XW 710 RESTORE 720:FOR A=1 TO 41:READ DA:
A$(A,A)=CHR$(DA):NEXT A
RI 720 DATA 0,0,0,0,0,169,0,141,47,2,16
9,60,141,2,211,169,0,141,231
IK 730 DATA 2,133,14,169,56,141,232,2,133
,15,169,0,133,10,169,0,133,11,24,96,76
KU 740 BYTE=LA-43:GOSUB 800:LALOW=LOW:LAH
I=HI:A$(3,4)=C$:BYTE=LA-4:GOSUB 800:A$
(5,6)=C$
VN 750 BYTE=LA-3:GOSUB 800:A$(32,32)=CHR$
(LOW):A$(36,36)=CHR$(HI)
PK 760 BYTE=RA:GOSUB 800:A$(42,43)=C$
VA 770 A=(LN+37)/128:IF A<>INT(A) THEN A=
INT(A)+1
HA 780 A$(2,2)=CHR$(A):FIN=A*128:A=FIN/48
:IF A<>INT(A) THEN A=INT(A)+1
YY 790 A$=A$(1,A*48):RETURN
IK 800 HI=INT(BYTE/256):LOW=BYTE-HI*256:C
$(1,1)=CHR$(LOW):C$(2,2)=CHR$(HI):RETU
RN
OV 900 ? CHR$(125);"BASIC LISTING COMPLET
E":? "PREPARE DISK FOR LISTING 2 :-":?
"THE DISK LOAD AND RUN PROGRAM"
GV 910 TRAP 940:POKE 764,44
PS 920 ? "++ DISK LOAD PROGRAM'S":? "FILE
NAME : D: .L2";B$(1,13);:INPUT
#16;DISKLOAD$
DM 930 CLOSE #1:CLOSE #2:OPEN #2,8,0,DISK
LOAD$:GOTO 950
LP 940 GOSUB 590:GOTO 920
HE 950 ? #2;"10 REM LOAD AND RUN ROUTINE
FOR ";TITLE$
DA 960 ? #2;"20 OPEN #1,4,0,";CHR$(34);PR
OGFILES;CHR$(34)
DW 970 ? #2;"30 POKE 850,7:POKE 852,";LAL
OW;"POKE 853,";LAHI;"POKE 856,255:PO
KE 857,255"
NG 980 ? #2;"40 X=USR(ADR(";CHR$(34);"hhh
lllv";CHR$(34);"),16)"
PB 990 ? #2;"50 CLOSE #1:X=USR(";LA-3;"):
RETURN

```




Welcome to The Tipster pages. As well as the usual general game help and cheats, from this issue onwards I will be featuring one complete Adventure solution each time (well, okay, seeing as the post from Australia takes so long! Ed.). I have a good stock of these solutions - thanks to your generous contributions - but 'new' solutions are always welcome especially those covering our very own Page 6 adventures or PD adventures. You know, we very rarely hear any more about these games once we send them out!! This issue's prize goes to Kevin Campbell of Livingston, for his comprehensive help on **COSMIC PIRATE**, devious cheating with the ladies attire on **STRIP POKER** and a little trick with **PRO MOUNTAIN BIKE SIMULATOR**. Well done Kevin! Without further ado, jump into your cockpit, fasten your safety harness and take off into the murky depths of space with **COSMIC PIRATE!!!**

COSMIC PIRATE

Some really useful guidance on this one since the game packaging carries rather sparse instructions! First of all, go to the PLAY SIM icon and play the free simulations. Instead of flying around shooting, remain facing in one direction and shoot very carefully. Once there are only a couple of Aliens left, press ESC to return to the main menu and play the free simulation once more. Repeat this procedure until your shooting accuracy increases to between 20-25.

Now launch and fly towards the crosshairs. You will arrive at a Space Station. Follow the crosshairs to the centre of the Space Station and a MAP will appear. There are 2 Pirates on this map - one is YOU and the other is the enemy. Choose one of these sprites and move it one square closer towards the Space Truck. If the enemy doesn't move then you must be the OTHER!

You will now be back in space and can, again, enter another Space Station, moving your ship closer to the Space Truck again - but FIRST you have to shoot a few waves of Aliens otherwise you will be charged 1000 credits when you pass the Space Station. There are also icons which you can collect which replenish Shields, deplete Shields, add to Score and collect Smart Bombs:

COLOUR OF ICON
RED
GREEN
YELLOW
PURPLE

MEANING
Automatic Smart Bomb
Bomb
Extra Points
Decrease Damage



You can change the colours of the game screen. Unfortunately, this can only be done once the game has started so play it in 2-player mode. Both players should wait and change colours, then start at the same time. To change the colours press keys 1-3.

STRIP POKER

Wanna strip the girls with the greatest of ease?!! Simply load in a normal DOS (say 2.5) then insert your Strip Poker disk.

Press 'A' for DIRECTORY then RETURN and RETURN again. The Strip Poker files will now be displayed. You will see the files OP1 to OP6.

Unlock the files then re-name OP6 to OP1 and OP1 to OP6. Now, when you play the game, the girl will be starkers! (Remember to write down what you have changed so you can easily change it back again).

On the game MAP, the BLACK squares are toll-free, but the GREEN squares require a toll:

DARK GREEN = 1000 Credits
LIGHT GREEN = 2000 Credits

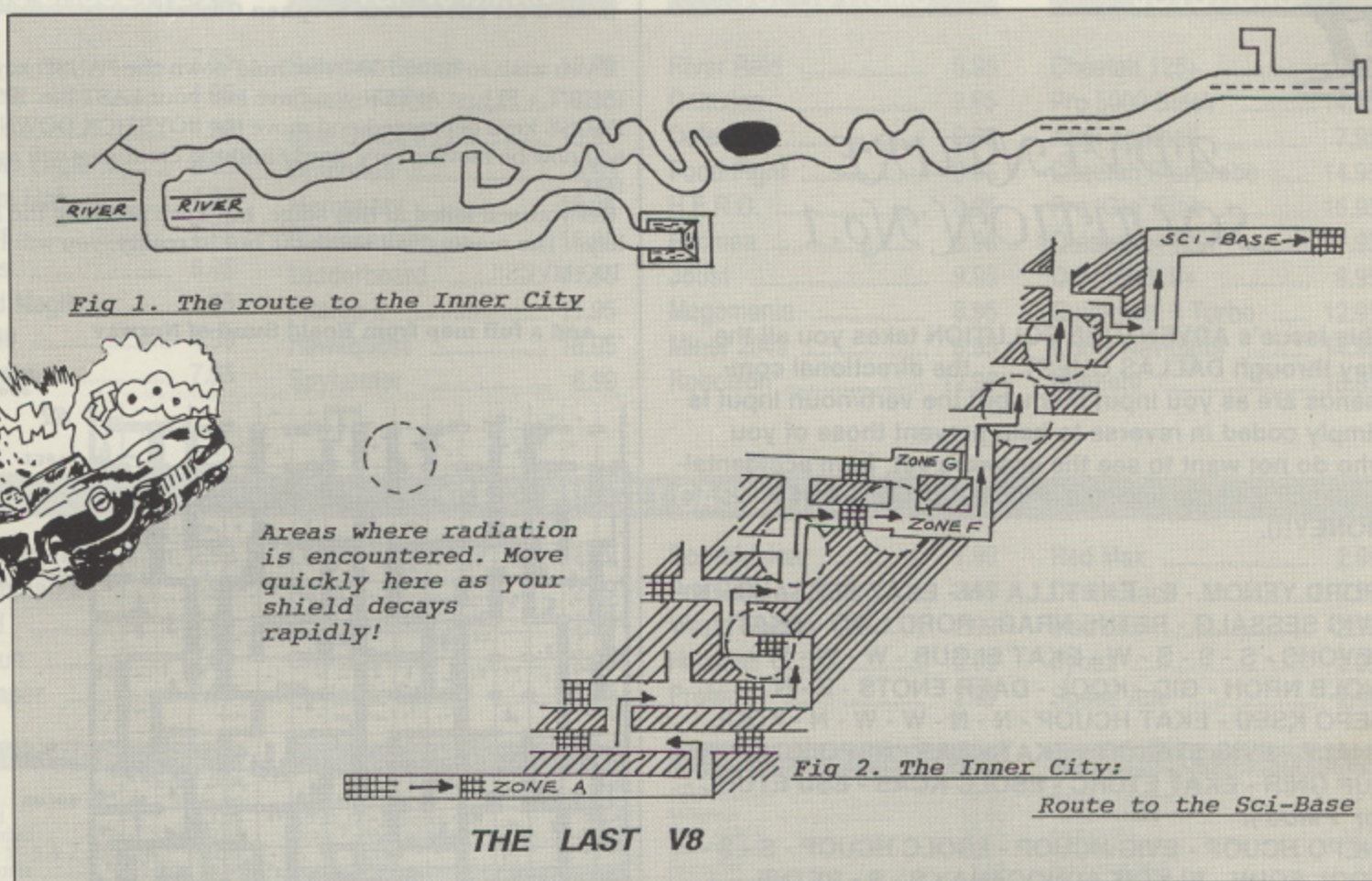
Once you gain access to the Space Station and the MAP appears, move another square until you arrive at the Space Truck. Then destroy it by shooting at the vital points when your crosshair is over them.

You will then be presented with the message "MISSION COMPLETED" and you will be awarded money. Now select another mission and repeat the procedure, this time with BIGGER Space Trucks. If you are lucky enough to win more money, you can buy more shields, etc.

Further COSMIC PIRATE tips from Rhys Harris

1. Once you start earning credits, DO NOT buy a larger gun as this will tend to hinder you by making the simulator practically impossible!
2. Blast everything regardless of your shooting accuracy in the actual game (auto-fire recommended!)
3. You have to accumulate over 6500 points if you want to make a profit.
4. The No.2 simulator is the easiest one to play. DO NOT shoot the heads straight away as this reduces the amount of points you can earn.





ALTERNATE CHEATS!!

From P.Zografaxis of Greece

ALTERNATE REALITY:THE CITY

Load the game as usual and select a temporary character. When the loading procedure ends, press RESET. Load a disk copier into memory and using this copier, you can copy DISK 2, SIDE 1 of the CITY to any blank disk.

You are now ready to do the following trick. Load the game (using your ORIGINAL disks) as usual and create a NEW CHARACTER. As players of this game will know, when you enter ANY Guild for the first time, you are given an increase in one of your 'STATS'.

Enter any Guild, then leave and press 'P' to PAUSE. Then insert the NEW disk (NOT any of your original disks!) and press 'S' to SAVE your character. If you carry out the foregoing procedure, your character will be able to enter Guilds and increase his/her STATS as many times as they require!

ALTERNATE REALITY:THE DUNGEON

When you pick up the GOLDEN APPLE it adds 15 to your Hit-Points. Unfortunately, it then disappears so when you first pick it up immediately drop it, pick it up again then drop it again. You can do this as many times as you like, but you have to be quick and SAVE regularly (only AFTER you have dropped it).

ARKANOID from Tom McCabe

Has anyone ever seen the FINAL SCREEN of this game? We doubt it because on some of the later screens the blocks have to be hit 10-20 times!! Well, here is a great cheat to give you infinite lives and enable you all to finish the game:

1. Make a back-up of your original game and work on the back-up.
2. Using a sector editor, make the following changes to Bytes 58, 59 and 60 of SECTOR 89:

BYTE No.	ORIGINAL	CHANGE TO
58	CE	EA
59	F4	EA
60	31	EA

ZORRO

Thanks to Stephen Garbett for the following solution. Collect the BRAND, heat it at the Forge and brand the OX....after this you can collect the item next to it....collect the BELLS from the Hotel and put them at the top of the Church....when both bells have been put in place, a grave will open....DO NOT enter it yet!....collect the TRUMPET from the Hotel and stand on the see-saw then press the FIRE button....a GUARD will appear and fall onto the see-saw, thus catapulting you into the air....move along the pole, go UP and collect the BOOT....collect the HANKY then go down the Well and get the GOBLET....now enter the grave and collect the BAGS OF MONEY....when you reach the room with the flashing icons, go to the FAR LEFT and push the barrels into the Cellar where you obtained the goblet....return to the Hotel and collect the FLOWERS....re-enter the tomb by the cellar and go UP into the Jail....free the PRISONERS whilst avoiding the bullets....the prisoners will form a platform to jump on to the low roof....enter the next room and then work your way across it....enter the other room and make your way to the SENORITA at the top....you will automatically give her the FLOWERS and the HANKY....she will kiss you and music will play....and you have just completed ZORRO!!!!

FREEBIE TIME

The Tipster has already given the game away about who received last issue's prize of TEN BUDGET CASSETTES so now it just remains to tell you what's on offer this time for all the HINTS, TIPS and CHEATS that you send in for the next issue. We have a CASIO SA-1 ELECTRONIC KEYBOARD with 29 keys, 4 preset sounds, 10 auto rhythms and 100 note memory. Complete with batteries. Annoy everyone in the family for the price of a few hints and tips!



ADVENTURE SOLUTION No.1

This issue's ADVENTURE SOLUTION takes you all the way through DALLAS QUEST.....the directional commands are as you input them, but the verb/noun input is simply coded in reverse to help prevent those of you who do not want to see the answers yet, from accidentally glancing at the text! (i.e. PORD YENOM = DROP MONEY!!).

PORD YENOM - E - EKAT LLA - N - EKAT SESSALG - N - EVIG SESSALG - RETNE NRAB - PORD LWO - EKAT LEVOHS - S - S - S - W - EKAT ELGUB - W - W - W - WOLB NROH - GID - KOOL - DAER ENOTS - E - N - NEPO KSED - EKAT HCUOP - N - N - W - W - N - KOOL ENALP - EVIG STEKCIT - EKAT KCAS - NEPO KCAS - TUP GNIR - EKAT ETUHC - ESOLC KCAS - ESU ETUHC - (or 'PMUJ').

NEPO HCUOP - EVIG HCUOP - ESOLC HCUOP - S - S - KOOL EGUH - ELKCIT ADNOCANA - S - S - RETNE TAOB - NEPO HCUOP - EVIG HCUOP - ESOLC HCUOP - WOR TAOB - WOLB NROH - S - LLUP TIATRUC - EKAT RORRIM - PORD ELGUB - EKAT THGIL - NEPO HCUOP - EVIG HCUOP - ESOLC HCUOP - PORD LEVOHS - PORD ETUHC - NEPO KCAS - TUP HCUOP - TUP RORRIM - EKAT EPOR - EKAT SREDNEPSUS - ESOLC KCAS - PORD EPOR - PORD SREDNEPSUS - PORD KCAS - NO THGIL.

BMILC REDDAL - PORD THGIL - E - S - EKAT KCAS - BMILC REDDAL - EKAT THGIL - W - FFO THGIL - NEPO KCAS - EKAT GNIR - EKAT OTOHP - EKAT HCUOP - PORD KCAS - WOHS OTOHP - EKAT LLA - W - NEPO HCUOP - EVIG HCUOP - ESOLC HCUOP - EVIG SGGE - EVIG RORRIM - EVAW GNIR - TAEH SGGE - NO THGIL - PORD GNIR - KOOL - EKAT PAM - ON - EVIG PAM.....to complete your DALLAS QUEST!!

I have been asked on many occasions to give a hint as to what the next Tipster column will cover. Much as I'd like to do this, it is not possible in practice as this particular aspect of the magazine is very 'topical' and varies considerably, depending on new game availability, readers requests and, of course, your own contributions over the weeks in between issues, so send something in NOW!

Thanks again for all your efforts - keep 'em coming - and do YOUR bit for your fellow Atarians **RE-MEMBER- no-one ever wins the main prize TWICE - The Tipster sees to that!!**

Send it all in to
**THE TIPSTER, NEW ATARI USER,
P.O. BOX 54, STAFFORD, ST16 1DR**

STARQUAKE

....an 8-bit cheat from Stephen Garbett.

If you wish to have 100 lives, hold down the PAUSE keys (SHIFT + P) just AFTER you have lost your LAST life. Keep the PAUSE keys depressed and move the JOYSTICK DOWN. You will now be moving very slowly and the creatures will move fast.

Get yourself killed at this stage, but keep pressing the PAUSE keys. The reading will show '00' but in reality, you will have 100 LIVES!!

... and a full map from Roald Sund of Norway

Transporter codes:

ST	XL/XE
TABET	DELTA
HINDI	TRAID
KWANG	PENTA
ROKEA	KERNX
SOLUH	ATARI
CHORE	WHOLE
KALED	SALCO
DAURO	MINIM
BORNO	ARGON
TSOIN	COSEC
FLIED	CRASH
NICHA	SECON
LUANG	ARTIC
CHING	Z.A.P
SOCHI	QUARK

A TIPSTER EXCLUSIVE!

Every reader sending in a NEW hint, tip, cheat or map will receive THE TIPSTER's unique badge, whether the contribution is used or not. The only qualification is that the tip must not have been used before in this column (ripping pages out of old Atari User mags doesn't count either!). Please note that we cannot indicate whether your hint or tip will appear in a future issue - it might, it might not - depends what The Tipster had for dinner when he comes to type up the column.



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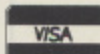
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TEXTVIEW

A utility to examine sectors on disk to find text or other information. Use Textview for cheating at adventure games!

```

CS 1 REM #####
BA 2 REM #          TEXTVIEW          #
LT 3 REM #          by                  #
SY 4 REM #          Juan Jose Rodriguez #
SP 5 REM #          Caracas, Venezuela #
SH 6 REM #          -----          #
LT 7 REM # NEW ATARI USER February 90 #
CZ 8 REM #####
HP 10 DIM LINE$(80),LINEOUT$(40):OPEN #1,
      8,0,"D:TEXTVIEW.OBJ"
KA 20 LINE=990:TRAP 100:GOSUB 200
WR 30 LINE$(1)="0":LINE$(80)="0":LINE$(2)
      =LINE$:LINEOUT$=LINE$(1,40)
KP 40 LINE=LINE+10:READ LINE$,CHKSUM:?"[
      HECKING LINE ";LINE
MZ 50 CHK=USR(1536,ADR(LINE$),ADR(LINEOUT
      $))
HE 60 GOSUB 300:?"#1;LINEOUT$(1,LEN(LINE$
      )/2);:GOTO 30
SP 100 ? #1:CLOSE #1:?"WORKED OKAY!":EN
      D
MQ 200 FOR A=1536 TO 1658:READ D:POKE A,D
      :NEXT A:RETURN
IX 210 DATA 216,104,104,133,204,104,133,2
      03,104,133,206,104,133,205,169,0,141,1
      27,6,141
LH 220 DATA 120,6,160,255,140,125,6,140,1
      26,6,173,126,6,201,39,208,11,173,127,6
      26,6,173,126,6,201,39,208,11,173,127,6
OG 230 DATA 133,212,173,128,6,133,213,96,
      172,125,6,200,140,125,6,177,203,32,111
      ,6
IS 240 DATA 10,10,10,10,141,123,6,172,125
      ,6,200,140,125,6,177,203,32,111,6,24
ZH 250 DATA 109,123,6,172,126,6,200,140,1
      26,6,145,205,24,109,127,6,141,127,6,17
      3
MY 260 DATA 128,6,105,0,141,128,6,76,30,6
      ,96,201,58,144,4,56,233,55,96,56,233,4
      0,96
YL 300 DLNE=PEEK(184)*256+PEEK(183)
RV 310 IF LINE<>DLNE THEN ? "LINE ";STR$(
      LINE);" MISSING!":END
OZ 320 IF CHKSUM<>CHK THEN ? "ERROR IN DA
      TA AT LINE ";STR$(LINE):END
ZF 330 RETURN
PP 1000 DATA FFFF80349D3718A9818D4402A921

```

continued

TEXTVIEW is a short machine language program that lets you view all the text contained on any disk, in single or enhanced density. The initial idea of TEXTVIEW was to serve as an assistance tool in the translation work to Spanish of the commercial software that I own but TEXTVIEW may also be useful to find hidden clues or secrets messages in adventure games like Starquake, Hacker, Spellbound, Never Ending Story and many others, or just for quick inspection of your text files.

EASY!

TEXTVIEW is so easy to use. Here are the commands:

START	Forward one sector
SELECT	Backward one sector
OPTION	Fast advance in the last direction selected
HELP	Set BLUE MODE (filtered mode ideal for text files)
CTRL+HELP	Return to YELLOW MODE

When you are looking at any sector, press the SPACE BAR to activate the automatic system that toggles in a periodic fashion throughout four different ATASCII modes. Press RETURN to stop it in the desired mode. This unique feature enables you to find hidden words that are unreadable in the normal mode.

The current sector (in hexadecimal) and the mode are indicated on screen at all times.

TEXTVIEW combined with a good sector editor makes a powerful team. Try it! I send a salute to all Atari 8-bit people around the world and may this program be useful for all.

Juan Jose Rodriguez
Caracas

TEXTVIEW

```

8D2F02A9008D3002A9368D3102A204BD74359D
C402CA10F72038,3906
JL 1010 DATA 36EA20503720C5342048358580C9
06F00CC905F0F0C903D0EFA581D0E820DC344C
AA34A9018581CE,4924
GP 1020 DATA 0A03AD0A03C9FFD003CE0B030D0B
034CF434A9008581EE0A03D003EE0B03AD0B03
C904D00AAD0A03,3426
ZV 1030 DATA C911D003205037AD0B031869108D
AA35AD0A03A84A4A4A290F186910C91A9002
69068DAB359029,3185
DL 1040 DATA 0F186910C91A900269068DAC35A5
00C903D009205C37EAEAEAEAEAE602053E4A27F
BD003438E9009D,4480
ZV 1050 DATA 0038CA10F46020EB36ADFC02C90C
F003206E36ADD0C02C911D003202B36C991D00D
203935A9008DDC,4206
TD 1060 DATA 02A92A8DC402AD1FD0602ACA0044
003407000000010000000000292E3325323400
2429332B0D3032,2119
BA 1070 DATA 25333300B2A5B4B5B2AE00000000
000000332523342F3200101011000000000000
00342530343629,1800
OB 1080 DATA 253700000000000000000000227900
2A75616E002A6F736500326F6472696775657A
00000000000000,1905
XM 1090 DATA 0000000000232132212321330000
36252E253A35252C2100000000000000707070
707046A0356046,1678
MS 1100 DATA C636704200383002300230022046
C636704650364040707047B035700202410036
A99A0DC402201C,2923
SI 1110 DATA 376000000000A27FA9009D0038CA
10F8A220BD00359D0038CA10F7ADFC02C90C00
F9600000000000,3723
SS 1120 DATA 0000002D2F242500210000000000
000000000000A9008D4035A9218D623620D736
ADFC02C90C0001,2270
SA 1130 DATA 60A9208D4035A9220D623620D736
ADFC02C90C000160A9408D4035A9230D623620
D736ADFC02C90C,4226
WB 1140 DATA D00160A9600D4035A9240D623620
D736ADFC02C90C000160201C3760FFFFFFFFFFFF
FFFFFFFFFFFFFF,5043
HM 1150 DATA FFFFFFFF0020393520EB36A90085
14A514C960D0FA60000000A27FBD0038C920F0
1FC940F01BC960,4700
CK 1160 DATA F017C960F013C9A0F00FC9C0F00B
C9E0F0079D0038CA10DB60A9009D0038CA10D2
60A27FBD0034C9,5166
LL 1170 DATA 9BF022C921901AC9409010C94190
12C9609000C9C1900AC9E0B00638E9209D0038
CA10D060A9009D,4600
IP 1180 DATA 0038CA10CF60A207BD78359D0403
CA10F760A27FA9009D00349D0038CA10F5A900
0DDC02A92A8DC4,4256
DI 1190 DATA 02A210BD02379D02309D0234CA10
F4603334213234002F320033252C2523340034
2F00232F2E3429,2460
ZV 1200 DATA 2E35250EE002E1020034,763

```

Expand The Capabilities Of Your 8 Bit Atari



Printer Connection

ICD's **Printer Connection** is a Centronics parallel printer interface for Atari's 8 bit computers which plugs into the computer's serial disk drive port and then directly into your Centronics printer. It works with most parallel printers and 8 bit software without the need for special driver software and includes a built-in printer cable. **£29.95.**



US Doubler

US Doubler

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SpartaDOS

This Disk Operating System has been widely acclaimed as the best DOS for the 8 bit Atari range. **SpartaDOS** from ICD supports everything from 810 disk drives through RAM disks to hard disks. A special menu allows rapid transfer, erasure and locking/unlocking of files using only the Space Bar, Option, Start and Select keys. The utility package supplied also features a 32 character keyboard buffer, intelligent switching between disk densities, a binary file game menu, subdirectories and time/date stamping. Ideal for use with the new XF551. **£29.95.**

SpartaDOS & US Doubler Pack-Only £49.95.

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P:R: Connection

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Dungeons & Dragons

John Sweeney looks back to the origins of today's top role-playing games and asks whether games on computer can compete with the real thing

"ONCE UPON A TIME, long, long ago there was a little group known as the Castle and Crusade Society. Their fantasy rules were published and, to this writer's knowledge, brought about much of the current interest in fantasy wargaming. For a time the group grew and prospered, and Dave Arneson decided to begin a medieval fantasy campaign game for his active Twin Cities club. From the map of the 'land' of the 'Great Kingdom' and environs - the territory of the C & C Society - Dave located a nice bog wherein to nest the weird enclave of 'Blackmoor', a spot between the 'Great Kingdom' and the fearsome 'Egg of Coot'. From the CHAINMAIL fantasy rules he drew ideas for a far more complex and exciting game, and thus began a campaign which still thrives as of this writing! In due course the news reached my ears, and the result is what you have in your hands at this moment. While the C & C Society is no longer, its spirit lives on, and we believe that all wargamers who are interested in the medieval period, not just fantasy buffs, will enjoy playing DUNGEONS and DRAGONS. Its possibilities go far beyond any previous offerings anywhere!"

So went Gary Gygax's introduction to the original DUNGEONS & DRAGONS on November 1st 1973. Prophetic words, eh?

I doubt that in his wildest fantasies Mr. Gygax could have dreamt just how far his Dungeons & Dragons would go!

D&D and Chainmail (a set of rules by Gary Gygax and Jeff Perren for playing a wargame using medieval miniatures) were published by an American company called Tactical Studies Rules - you have probably only ever heard them called TSR!

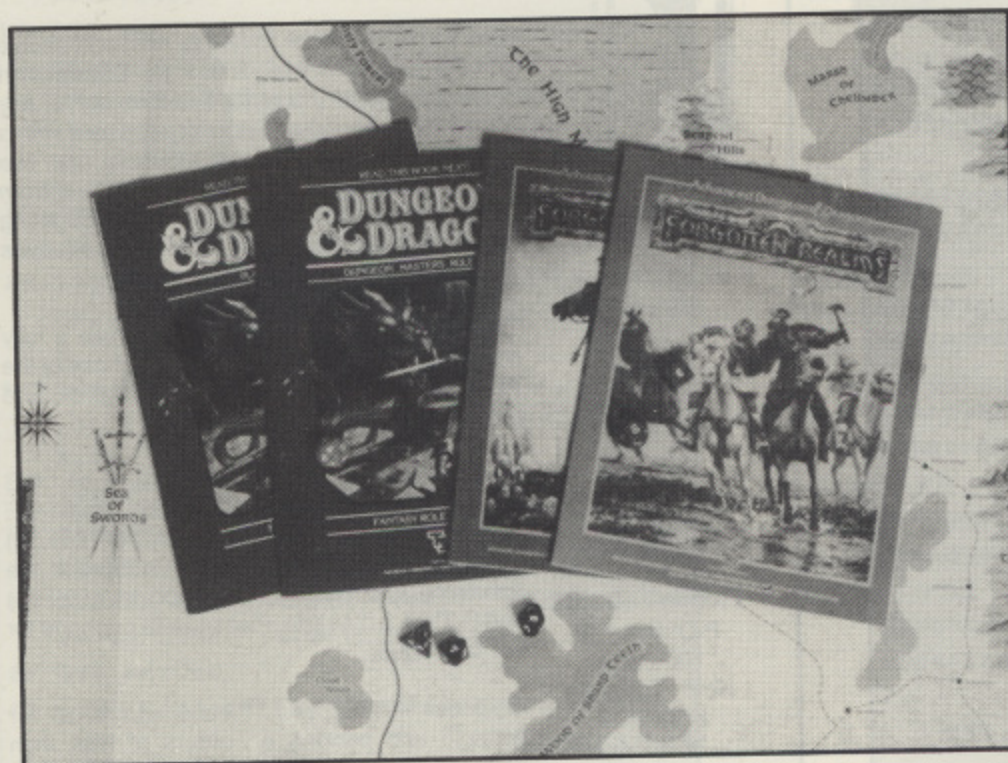
Unfortunately, those first versions of D&D were written for wargame fiends who already understood all the concepts of tabletop miniature warfare. To the average person they were completely incomprehensible! Those of you who have grown up with D&D may have difficulty understanding how difficult it was to get into it back in the Seventies.

Apart from the D&D manuals having been completely rewritten a couple of times since then to make it much easier to get started, the bias of the game has also changed since those early days - the original D&D was subtitled: "Rules for Fantastic Medieval Wargames Campaigns Playable with Paper and Pencil and Miniature Figures". Now it is simply a "Fantasy Role Playing Game". The first D&D booklets don't mention RPGs at all - the name hadn't been invented then! The 1983 version states "A group game is best with 3-6 players." In 1973 it said "At least one referee [Dungeon Master!] and from four to fifty players can be handled in any single campaign, but the referee to player ratio should be about 1:20 or thereabouts."

So somewhere over those first ten years D&D became an RPG. But, what is an RPG? One definition I have seen is "A Role-Playing Game is a game system that will enable you to construct an alter-ego. You create a character, perhaps quite unlike yourself, to enter a world strangely different from your own."

Assuming you have a good group of friends to play with and a good Dungeon Master who has set up an interesting Dungeon, your fun at playing face-to-face is further enhanced by the interaction between the characters and the fact that you really can try ANYTHING! The DM, being a human being (presumably) is capable of understanding ANYTHING you want to try, and deciding how he is going to handle it.

So, this is where computer games come



in. Over the years many, many games have come out based in some way on D&D. But they all have two major failings, inherent in the fact that they are computer programs. First, since they are all finite in their programming and their resources, you are always limited to being allowed to try only those things that the program has been written to handle. Second, you can never really make your character behave just as you want, you have to play the character in a way that has been pre-determined by the programmer in order to win.

Countless computer games come out these days labelled as RPGs, but, until we have computers like The Hitchhiker's Guide to the Galaxies' Deep Thought or Asimov's positronic brains, none of them will ever give you enough freedom in your character development to really be RPGs.

The only real way to achieve the kind of interaction you get when you play face to face with real people is, not surprisingly, to use real people! This is exactly what happens when you indulge in one of the many Multi-User Dungeons that are springing up all over the place. You use a modem and telephone line to link into a remote computer which plays the part of the DM and allows you to interact with all the other people who are linked in and exploring this fantasy world. I have never played one of these - have any of YOU played them? How about writing an article for us about MUDs?

So, if we can't have the full RPG aspect of D&D what can we have? What else is there in D&D that we can replicate on today's computers? Some of the ingredients of a good Dungeon are deadly Monsters to fight, interesting NPCs to interact with (an NPC is a Non-Player Character - i.e. any other inhabitant, who may help or hinder you, but that you don't necessarily have to destroy!), Magic and Combat Systems that work, Treasures and Artefacts (some of which should be useable - possibly magical - and relevant to the game in some way), places to explore and map (with mazes maybe), puzzles to solve, and sub-quests, the completion of which will in some way help you towards your final objective. And normally, as your character proceeds through the game, there is some mechanism for measuring his or her progress and rewarding him or her suit-

ably with enhanced capabilities - strength, hit points, etc.

Dungeon Master was so successful because it achieved all this (apart from NPCs) and had superb graphics AND had the best mouse interfaces I have ever seen for controlling your characters. It was not, however, an RPG in the sense defined above - you have no say in your character's personality development nor in his interaction with other denizens of this world - you just kill them!

The first widely available D&D related computer games were the text adventures which grew up alongside D&D in the late Seventies: Adventure, Zork, Adventureland, etc. By the early Eighties the power of the micro had grown sufficiently to allow crude graphics. D&D fanatics quickly took advantage of this and by 1982 we had Sir-Tech's Wizardry, Origin's Ultima, and Epyx's Dunjonquest (The Temple of Apshai). They all used crude line drawings, used the keyboard as the main interface, and provided long, difficult games with quite a lot of depth to them. They all had multiple sequels, which grew in sophistication as the machines grew in power and the programmers and games designers learnt to

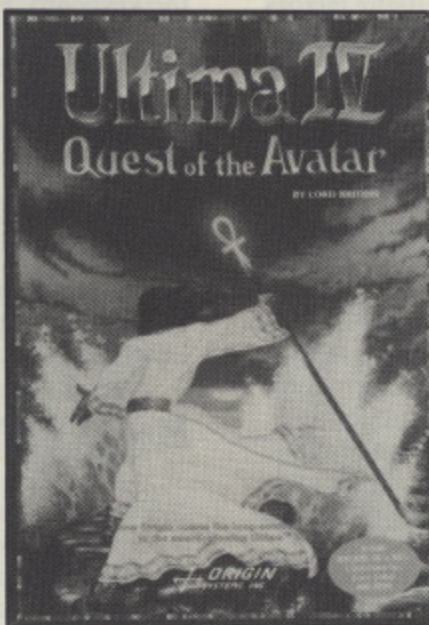
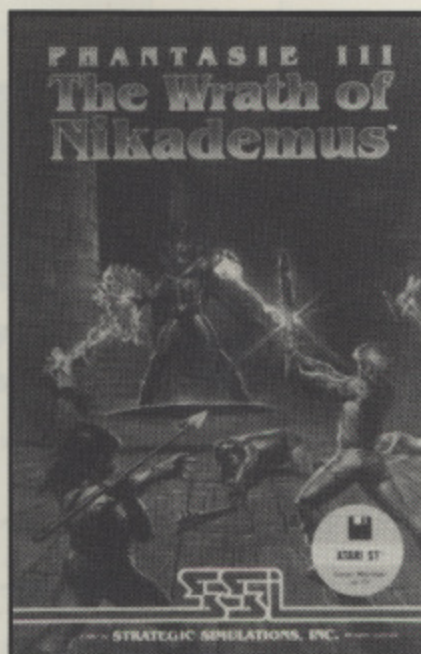
use that power.

The Ultima series is one of the best. Ultima IV covers all the aspects of D&D mentioned above, including NPC interaction. You have to converse with countless characters using single word prompts to glean information. It also goes further than any game I have yet seen in providing an element of RPG. If you want to win you have to play a good guy and achieve perfection in eight virtues, so everything you do is affected by these personality requirements. Ultima V has finally been released on the ST and should be another winner.

Recently another player had entered the arena. Strategic Simulations Inc., better known as SSI, for years a specialist in wargames, started producing some excellent D&D series - The Wizard's Crown, for the keyboarders, with so much detail that a single fight could last half an hour and Phantasie for those who preferred to use a mouse, have flashy graphics and have the computer to draw the map on the screen for them!

By the late Eighties TSR had decided to enter the Computer Rat-Race and were looking for a partner with the right computer skills. They chose SSI and launched the very first TSR-approved D&D computer games in 1988. Pools of Radiance has still not reached the ST, so initially we had only Heroes of the Lance. This was basically an arcade game in a D&D setting - you just hack your way round a fairly simple maze against some pretty dumb monsters then zap a dragon. Part II - Dragons of Flame - is out now and promises to be a lot better! We also have Hillsfar - A Forgotten Realms Action Adventure - see the review in this issue.

As with so much mass media these days, you have to look hard to find the gems amongst all the dross on the shelves, but, basically D&Ders have never had it so good - and the best will surely continue to get better!



BIORHYTHM MONITOR

Ever wondered why it is that on some days you seem to be on top of the world, able to accomplish the household chores with ease, complete the Times crossword over breakfast and generally be in command of things whilst on other days you're constantly making mistakes and can't seem to get your brain into gear? Well, although many factors contribute and interact to affect one's well-being, it may be that biorhythms are fundamental responsible.

WHAT ARE THEY?

Biorhythms (literally the rhythms of life) are biological clocks which function as regularly as digital timepieces from the day we are born to the day we die. We all possess internal clocks which regulate our highs and lows on a daily basis. Jet-setters are made aware of this since high speed travel into another world time zone doesn't allow the clock sufficient time to reset so resulting in jet-lag. Shift workers suffer similar effects.

The program presented here is concerned with three cycles operating on an approximately monthly basis and which affect our physical, emotional and intellectual or mental states. Each cycle can be considered as a sine wave rising and falling continually and it is the portion of this curve on which we find ourselves which affects the way we feel. If we happen to be on the rising part of the curve we experience a feeling of well-being but if we are on the declining section we don't feel so good. Between these two regions are the so-called critical phases when the wave is changing direction. During these times (each lasting couple of days) we are prone to making mistakes either through over-confidence at the end of our 'good' phase to poor concentration at the end of our 'not so good' phase. Rash decisions can be made at these times - indeed if all three curves happen to bottom out simultaneously, then watch out!

HOW BIORHYTHMS ARE CALCULATED

The calculations are very simple to make but become tedious and error prone if a series are to be made - just the job for a computer which, so far as I know, does not experience the electronic equivalents of the effects we are looking at. All you do is work out the number of days you have been alive, making leap year corrections as necessary, then divide that number by 23 for physical, 28 for emotional or 33 for the intellectual cycles. Ignore the resulting whole number, which only informs us of the number of complete cycles which have elapsed since birth. If the decimal portion of the result lies between 0.1 and 0.4 we are into the 'good' phase of the corresponding cycle; if between 0.6 and 0.9 we are into the period when things don't go so well. The two intervening areas are the critical ones, between 0.4 and 0.6 indicating a 'high' and between 0.9 through zero to 0.1 marking a 'low'. Both periods require additional care to be taken when making decisions.

USING THE PROGRAM

A short pause will follow the RUN command. When the display appears, simply input your birthdate and the present date via the keyboard. Erroneous entries will be trapped automatically but if you want to correct a mistake, just press the backspace key (no shift required) to erase an entry, press it twice to erase both dates. There is no need to use the 'Return' key since the entry logic will recognise completed fields and blank an entry if impossible date/month combinations are input. The program now calculates the three cycles and displays them in different colours over a three month period around the current date. To make a further entry, clear the graphs with the START key. Providing you enter dates at least one year apart(!) the program will correctly calculate and display both past and forecasted information.

HOW IT WORKS

For those of you who like following listings the REM statements should prove adequate. In following the calculation, note that variable L which holds the total of days between birth and present is adjusted to the start of the previous month in order to ease the graphing process for the three month period. Mode 7.5 is used here interleaved with text, whilst simple PMG and DLI techniques enhance the presentation. The use of variables as frequently used constants is not primarily a memory-saver here but to reduce loading time which becomes of value to cassette users.

SOME PARTING THOUGHTS

On a final point, it should be stressed that the different cycles we've been analysing interact to a degree. For example, one's emotional state must affect the other two and this should be taken into account when trying to correlate the information. Fascinating as biorhythms may be, articles on them are hard to come by and perhaps some of you may be able to throw additional light on the subject. I have heard that they are used by airline pilots to determine flying schedules and by athletes to optimise performance during training - very diverse pursuits indeed! Is this true? What triggers these clocks in the first instance and why do cycle lengths correspond to a precise number of days? Is there a solar or lunar influence which locks the frequencies into this tight 23-28-33 sequence?

by Dave Hitchens

BIORHYTHM MONITOR

```

EH 0 REM *****
RL 1 REM *      BIORHYTHM MONITOR      *
LQ 2 REM *              by              *
YM 3 REM *      Dave Hitchens          *
TB 4 REM *              *
EM 5 REM *****
JM 6 REM * NEW ATARI USER -   APRIL 90 *
EO 7 REM *****
NM 8 REM
IE 15 GOTO 1000
VB 30 POKE 89,INT(5C/256):POKE 88,5C-256*
    PEEK(89):RETURN
KM 34 REM ENTER DATES
SR 35 TMP=0
EV 40 N=I:POKE 1617,94*(TMP=0):POKE 1618,
    94*(TMP=0)
MC 50 GET #I,A
PL 55 IF A=126 AND N>I THEN GOSUB 400+TMP
    :POSITION TMP+N10,I: B$:GOTO 40
PB 60 IF A=126 THEN TMP=0:N=Z:GOTO 55
MC 65 IF A<48 OR A>57 THEN 50
SB 70 POSITION TMP+N10,I:IF NOT TMP THEN
    5$(N,N)=CHR$(A):? 5$
PO 75 IF TMP THEN E$(N,N)=CHR$(A):? E$
ES 80 N=N+I:IF N=8 OR N=8+B THEN N=N+I
LI 85 IF N<11 THEN 50
ZS 90 IF NOT TMP THEN 5(I)=VAL(5$(I,Z)):
    5(Z)=VAL(5$(H,H+I)):5(B)=VAL(5$(7,N10))
    :H$=5$:Q=(5(B)/H=INT(5(B)/H))
CO 95 IF TMP THEN E(I)=VAL(E$(I,Z)):E(Z)=
    VAL(E$(H,H+I)):E(B)=VAL(E$(7,N10)):H$=
    E$:Q=(E(B)/H=INT(E(B)/H))
OK 100 TRAP 300:IF 5(I)>M(5(Z))+Q OR 5(Z)
    >12 OR 5(Z)<I THEN A=126:GOTO 55
IC 102 FOR N=I TO N10:H$(N,N)=CHR$(ASC(H$
    (N,N))+126):NEXT N:POSITION TMP+N10,I:
    ? H$
RM 105 IF TMP=0 THEN TMP=Z+N10:GOTO 40
XV 110 TRAP 300:IF E(I)>M(E(Z))+Q OR E(Z)
    >12 OR E(Z)<I OR E(B)<5(B) THEN A=126:
    GOTO 55
ZS 120 TRAP 40000:POKE 1618,0
LQ 129 REM CALC CYCLES
PH 130 L=0:Q=0:IF E(B)/H=INT(E(B)/H) THEN
    Q=I
HM 135 FOR N=M(5(Z)) TO 5(I)+I STEP -I:L=
    L+I:NEXT N:IF 5(Z)=Z THEN L=L+(5(B)/H=
    INT(5(B)/H))
FH 141 IF 5(Z)=12 THEN 145
HP 142 FOR N=5(Z)+I TO 12:L=L+M(N):IF N=Z
    THEN L=L+(5(B)/H=INT(5(B)/H))
IG 143 NEXT N
OA 145 IF 5(B)+1<E(B) THEN FOR N=5(B)+I
    TO E(B)-I:L=L+365+(N/H=INT(N/H)):NEXT
    N
GH 147 FOR N=I TO E(I):L=L+I:NEXT N
RC 148 IF E(Z)=I THEN 152
UC 150 FOR N=I TO E(Z)-I:L=L+M(N):IF N=Z
    THEN L=L+Q
IC 151 NEXT N
YY 152 TMP=E(Z):T1=M(TMP-I)+(TMP-I=Z AND
    Q):T2=M(TMP)+(TMP=Z AND Q):T3=M(TMP+I)
    +(TMP+I=Z AND Q)
OM 155 L=L-T1-E(1)
VQ 156 PH=L/23-INT(L/23):EM=L/28-INT(L/28)
    :IN=L/33-INT(L/33)
XU 159 REM MONTHS/DATES
KS 160 TMP=E(Z):RB=1611
VS 165 SC=5C1:GOSUB N30:RESTORE 1020:POKE
    102,TMP-I:READ M$:POSITION N30-I-(LEN
    (M$)/Z),I: M$
EB 170 SC=5C2:GOSUB N30:READ M$
CD 175 POSITION 24,0: D$(I,T1):D=H*T1+48
    :POKE RB,D:POKE RB+I,D:RB=RB+Z
YC 180 POSITION N30-I-(LEN(M$)/Z),I: M$
FC 185 SC=5C3:GOSUB N30:READ M$

```

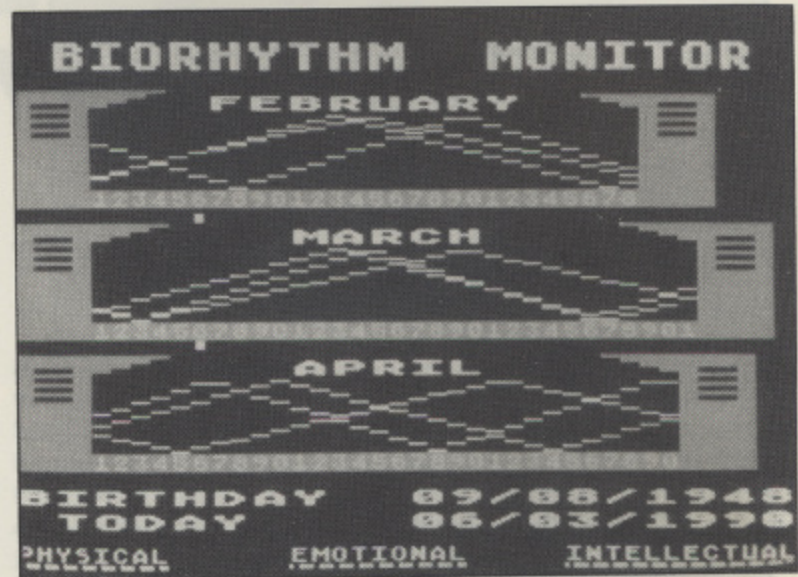
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EC 190 POSITION 24,0: D$(I,T2):D=H*T2+48
    :POKE RB,D:POKE RB+I,D:RB=RB+Z
YT 195 POSITION N30-I-(LEN(M$)/Z),I: M$
ZH 200 SC=5C4:GOSUB N30:POSITION H,0: D$
    (I,T3):D=H*T3+48:POKE RB,D:POKE RB+I,D
VA 210 POKE 53250,55+H*(E(I))
AG 215 REM PLOT BIO'S
ES 220 POKE 87,H+B
FY 225 SC=5C1:GOSUB N30:T5=T1:GOSUB 250:5
    C=5C2:GOSUB N30:T5=T2:GOSUB 250:5C=5C3
    :GOSUB N30:T5=T3:GOSUB 250
ZB 230 POKE 87,0
UT 240 IF PEEK(53279)=B+B THEN RUN
OG 245 GOTO 240
XX 250 T6=23:T4=PH:D=I:GOSUB 270:PH=T4:D=
    Z:T4=EM:T6=28:GOSUB 270:EM=T4:D=B:T4=I
    N:T6=33:GOSUB 270:IN=T4
ZK 260 RETURN
FQ 270 COLOR D:X=16:Y=33
CH 275 FOR N=I TO T5
SM 280 IF T4>I THEN T4=T4-I
UU 285 F1=T4:IF F1>0.5 THEN F1=I-F1
ES 290 PLOT X,Y-60*F1:DRAWTO X+B,Y-60*F1
UI 295 X=X+H:T4=T4+I/T6:NEXT N
AL 297 RETURN
HJ 299 REM INPUT TRAP
LB 300 A=126:GOTO 55
KO 400 5$=B$:RETURN
KQ 410 5$=B$:RETURN
VA 420 E$=B$:RETURN
GX 999 REM SETUP
BN 1000 O=0:I=1:Z=I+I:B=Z+I:H=B+I:N10=10:
    N30=30:DIM M$(N10),D$(N30+I),5$(N10),E
    $(N10),B$(N10),H$(N10),M(13),5(B),E(B)
AU 1010 D$="12345678901234567890123456789
    01":5$="00/00/0000":E$=5$:B$=5$:OPEN #
    I,H,0,"K:"
ZF 1020 DATA december,january,february,ma
rch,april,may,june,july,august,septemb
er,october,november,december,january
QG 1025 RESTORE 1030:FOR N=0 TO 13:READ D
    :M(N)=D:NEXT N
YL 1030 DATA 31,31,28,31,30,31,30,31,31,3
    0,31,30,31,31
CB 1040 GRAPHICS 24:POKE 559,0:POKE 82,0:
    POKE 752,I:DL=PEEK(560)+256*PEEK(561):
    5C=PEEK(88)+256*PEEK(89)
CB 1050 FOR N=9 TO 112:POKE DL+N,14:NEXT
    N
VM 1060 FOR N=I TO 27:READ DT,D:POKE DL+D
    T,D:NEXT N
PX 1070 DATA 0,16,1,0,6,7,7,240,0,6,40,14
    2,41,130,42,112,43,6,75,142,76,130,77,
    112,78,6,112,142,113,130,114,96,115,6
WE 1075 DATA 116,144,117,6,122,65,104,78,
    105,0,3,78,118,64,119,120,120,130,121,
    13
SB 1080 POKE DL+123,PEEK(560):POKE DL+124
    ,PEEK(561):POKE DL+106,PEEK(106)-16
QC 1090 GOSUB 2000:POKE 53277,B:POKE 623,
    I:A=USR(ADR("W/ \h"))
IY 1100 POKE 512,0:POKE 513,B+B:POKE 559,
    46:POKE 54286,192
EV 1110 POKE 87,0:POSITION I,I: "BIORHYT
    HM MONITOR"
ET 1120 5C1=5C:5C2=5C1+1340:5C3=5C2+1340:
    5C4=5C3+1360:5C=5C4:GOSUB N30
BZ 1150 POSITION 0,I: "birthday ";5$;"
    today ";E$;
VK 1160 ? "PHYSICAL          EMOTIONAL          IN
    TELLECTUAL"
SA 1200 GOTO 35
JH 1999 REM PMG
RL 2000 DIM PMG$(50):PMG$="wotah/h/h/hhhh

```

continued

BIORHYTHM MONITOR



SEE PREVIOUS PAGE
FOR DETAILS

```

*****w7r*****
MJ 2005 PMG=PEEK(106)-40:POKE 54279,PMG:P
MG=256*PMG
NH 2010 FOR N=704 TO 711:READ D:POKE N,D:
NEXT N:DATA 228,228,0,0,56,200,234,10
NF 2020 FOR N=53248 TO 53259:READ D:POKE
N,D:NEXT N:DATA 48,172,0,192,0,0,0,3
,3,0,3
SV 2030 IF PEEK(1536)=72 THEN RETURN
PX 2035 FOR D=20 TO 76 STEP 28
AU 2037 FOR N=0 TO B:POKE PMG+918+N,D,255
:NEXT N
DU 2040 FOR N=I TO 25:POKE PMG+512+D+N,8+
ASC(PMG$(N,N)):NEXT N
DD 2050 FOR N=26 TO 50:POKE PMG+615+D+N,8
+ASC(PMG$(N,N)):NEXT N
DF 2060 NEXT D
KD 2070 RB=746+PMG:POKE RB,B+H:POKE RB+I,
B+H:POKE RB+5,B+H:POKE RB+6,B+H
PO 2080 FOR N=815 TO 842 STEP 27:POKE PMG
+N,B:POKE PMG+N+I,B:NEXT N
ER 2099 REM DLT
GU 2100 RESTORE 2110:FOR N=0 TO 54:READ D
:POKE 1536+N,D:NEXT N
PM 2110 DATA 72,138,72,174,64,6,189,65,6,
141,10,212,141,24,208,189,75,6,141,1,2
08,238,64,6,104,170,104,64
WR 2120 DATA 0,0,0,0,169,0,141,64,6,230,2
03,165,203,201,11,208,4,169,4,133,203,
141,194,2,76,98,228
LY 2140 FOR N=0 TO 19:READ D:POKE 1600+N,
D:NEXT N
SA 2145 DATA 0,118,228,118,228,118,228,88
,90,0,118,172,172,172,172,172,172,0,0,
0
AE 2200 RETURN
    
```

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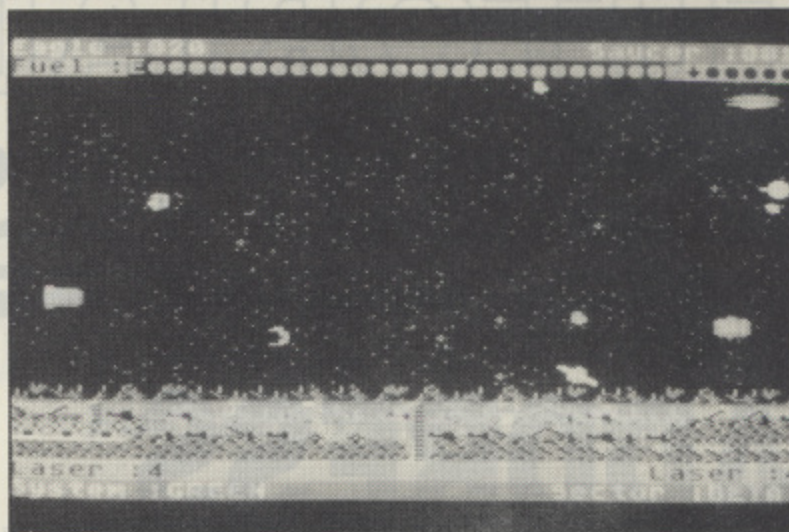
ASTROWARP

A 2 PLAYER SPACE FIGHT
in 100% machine code
by Peter Caddock

ASTROWARP is a two player game and two joysticks are required. Boot up side 2 of this issue's disk and away you go! Once at the title screen press either of the joystick buttons or press START to 'activate' the warp drive which will send you and your opponent to your battle ground. The two ships (an 'Eagle' class fighter and a 'Saucer') are pilotless and are controlled by remote via the players using joysticks. The game is a 'tug-of-war' in space but in this case you push your opponent backwards towards his back markers instead of pulling him towards yours. This is achieved by hitting your opponent with a blast from your magna-laser. Each hit against your opponent scores 1 for you and pushes him backwards, the background scrolls away from him. The object is for you to hit your opponent as many times as possible without being hit yourself, (almost impossible!). Eventually successive hits will make your opponent pass the boundary markers and he cannot be pushed any further, at this point one of two things may happen. The game may end or he/she may fight back in time and push you backwards towards your boundary markers. A cup will occasionally appear showing who has the advantage and at the end of the game it will show who had the last advantage. The score will show the winner. At the end of the game both remote crafts will fall and explode on the planet surface.

Of course the game is not quite so simple as it at first appears. Set in a strange solar system, the game is played above a planet surface in one of five sectors: ALPHA, BETA, CORON, DEROL, ZETA. Fuel is magnetically charged and loses its charge at different rates depending upon which sector you are in. ALPHA discharges your fuel very quickly and as a result the time you have to beat your opponent is shortened. BETA discharges fuel at a slow rate, game time is lengthened and so different tactics have to be applied. The fuel level is shown at the top of the screen and is identical for each craft so only one display is necessary. As a back-up, a SYSTEM guide is displayed at the bottom left of the screen showing three levels of urgency. 'GREEN' is fuel at optimum charge, 'YELLOW' means fuel is discharging, and 'RED' indicates that fuel is almost completely discharged.

As both players have an unlimited stock of remote crafts at their disposal no display is required. Magna-lasers on the other hand can only be recharged, to a maximum of 5 blasts, when both craft reach zero. Therefore an element of strategy comes



into force, if you deplete your magna-laser charge to zero but your opponent still has some charge left he is likely to take advantage of the situation and 'unleash' his remaining lasers at his leisure, putting undue stress on you! Each players' laser charge is displayed at the bottom of the screen. When both reach zero they are automatically recharged to 5.

Additionally gravity affects play by pulling both players towards the planet surface. Below a certain specific height the players will lose control as gravity becomes too strong for their engines to cope. This will result in crashing and exploding on the surface below and scoring 1 for the opponent.

As the game progresses it will become apparent that the players are not alone in space. Indeed they constantly have to avoid collision with rotating space rubble, meteors, satellites, and an offensive storm cloud which is attracted by the magnetic fuel on board each craft. The cloud unleashes lightning towards an unsuspecting player as it orbits above him. These annoyances may appear at any time and often cause trouble when you are least expecting it.

It has to be said that there is a deliberate weighting in the game and players who tend to be better at games are asked to pilot the saucer craft. The weighting is slight but it exists.

Other items of interest include a pause ON/OFF facility via the space bar but orbiting objects do not stop for anything so beware! Flying your craft directly in front of any of the background planets is likely to be bad for your health - correction IS bad for your health! (well I did say it was a strange solar system!). The final scores are displayed during the titles and the highest score of the day is also displayed.

The game was originally devised by my cousin Gary P. Tinsley who had a couple of BASIC games listed in the old ATARI USER. It was originally written in BASIC and still exists in that form. This machine code version takes the original ideas a lot further. For best results turn the lights out, the colour and the contrast up, and the brightness down so that black is black and watch for the subtle two level parallax scrolling!

I hope you enjoy it!

SOUTH SEAS TRADER 1906 by Mike Blenkiron

South Seas Trader 1906 - By M.Blenkiron		
House of BARNESLEY		
Status	Month:1	Year of the Rat
Cash	£500	General 0
Owing	£5462	Arms 0
(2% APR)		Silk 0
Units	150	Whiskey 0
		Opium 0
Present Location: Hong Kong		
Weather: No reliable Reports		
Options:		Prices:
Buy	General	£12
Sell	Arms	£57
Leave	Silk	£254
Loan Shark	Whiskey	£424
	Opium	£5735

South Seas Trader is a trading simulation set in the South China Seas at the turn of the century. You begin the game owing 5000 big ones and have 12 years (one month at a time) to repay this, and end up in the black. You trade at various ports in five commodities, each subject to inflation or indeed deflation. Additionally, at each port there is one other option ranging from borrowing money to taking on board refugees!

The game can end in one of many ways which include killing yourself at Russian Roulette and imprisonment for Opium dealing. Each ending has its appropriate music - either 'Happy days are here again' or the obligatory 'Death march'.

THE DISPLAY

The screen display consists of a multicoloured GR.0 screen divided into three parts - two for display purposes and one for input/messages. As all input is via the keyboard, the BREAK key is disabled though RESET should stop the program in its tracks. The data for the DLI's used to produce to two extra colours, can be found at line 6040, with the new Display List data at 6050. While I'm on the subject, the 'flicker' caused by keyboard input is eliminated on XL/XE models by the POKE 731,255 at line 4070 which turns off the keyboard speaker. 400/800 owners will just have to persevere I'm afraid.

My thanks to Mutley for his constant support and encouragement, and also thanks to Bonehead for the Cheese and Pickle sandwiches.

ORDER THE ISSUE 43 DISK WITH
THE ORDER FORM ON PAGE 49

Ian Finlayson's TUTORIAL SUBROUTINES

ADDRESS BOOK REVISITED

INTRODUCTION, CORRECTION AND APOLOGY!

It seems from the amount of correspondence I have received that you prefer the meatier programs to the short tutorial subroutines and so I have written an addition to the cassette database that will allow you to search for a particular item. But before we get onto that I must make a big apology to those of you who have had some difficulty with the program so far. At first when I had one or two letters from readers who could not make the database work I thought it was all 'finger trouble', but I got several more letters which all seemed to have problems in the same area. I went back to my archives and rebuilt the total program from the separate parts and it all worked OK, so I went to the versions that came back from New Atari User with my disk subscription and built it up again from that. This time it did not work, and a close comparison of the two versions revealed the problem. In the first part of the series I set up a framework for the program, and then in later parts found that one or two lines had to be deleted so I put in program lines like this:

```
12001 REM DELETE THIS LINE
```

These should have overwritten the unwanted program lines, thus effectively deleting them. What happened next is pure surmise, but I think that our very thorough and hardworking Editor did a very comprehensive job of proof reading my submission. When he got part way through my listing he saw a few lines which said "REM DELETE THIS LINE" and thought to himself: "Poor old Ian, rushing to get his work in on time again. He's forgotten to get rid of those lines he marked for deletion." So he helped out by removing them before they were published! (Good try, Ian, but the Golden Rule is never to play around with the listings. Ed.) Thus there are some five unwanted lines which could be lurking in your version of the program causing problems. All you have to do is ensure that lines 6001, 7001, 8001, 12001 and 12002 are removed from your typed in versions of the program and it will work!

SEARCH SUBROUTINE

One or two of you have indicated in your letters that it would be handy to be able to search for a particular record. One way of doing this fairly quickly on a small database would be to sort the database on the field you wish to search by, and then go to VIEW record 1 and step through with the + key to find the one you want. Because of the similarities between sorting and searching I have chosen to combine them under one heading in the main menu. This would be particularly appropriate if search routines were always preceded by a sort, I had originally intended to do this, but decided to go for the simplest possible search which should be adequate for this application where the total number of records will not normally be very high.

PROGRAM ANALYSIS

Line 1020 - this amends the old menu item to include the SEARCH function

Lines 3003 to 3018 - change the old sort submenu to include selections for searching. I have chosen to search the same three fields as were used for the SORT function.

Lines 3025 to 3028 - these extend the branches that result from the keypress. Depending on which key is pressed the variable OFF is set and the string SEARCH\$. The former is the same offset value as was previously used in the SORT subroutine, that is the number of characters from the start of the record to the start of the field to be searched. SEARCH\$ contains the name of the field being searched.

Lines 3200,3205 - Prompt for an input of a string to be searched for (FIND\$). It is not necessary to input the whole item, and this can help by making searches more general. For instance inputting "JO" would find JOHNS, JONES or JOHN-SON if they were in the data (but not Johns as the search is case sensitive). The input is left very general, with no error trapping, as a nonsensical entry does no harm. It just fails to find a match in the data. The variable R (record number) is initialised to zero.

Line 3210 finds the position in DAT\$ (the database) of the start of the field which is being compared to FIND\$.

Line 3215 is where the comparison is made. If there is no match we jump to 3240. Otherwise the program continues to 3220.

Lines 3220 to 3235 - First print the record number where the match was found on screen, then prompt for a Yes or No to search the database further.

Line 3235 - If no further search is required the program RETURNS to the main menu, otherwise it continues.

Lines 3240 - 3250 increment R by one to take the search into the next record, then checks, and if the end of the data has been reached prompts for a keypress and returns to the main menu. If there are still more records to go line 3250 loops back to 3210 and the search continues.

Line 12001 is an extra line in the setup part of the program which is used to initialise the two new variables SEARCH\$ and FIND\$.


```

EI 1 REM *****
WP 2 REM *      TUTORIAL SUBROUTINES      *
AU 3 REM *      ADDRESS BOOK - ADDITION    *
EF 5 REM *      SEARCH                      *
EN 6 REM *****
UA 7 REM *      NEW ATARI USER -   MARCH 90 *
EP 8 REM *****
NO 9 REM
IX 1020 ? "      2- SORT OR SEARCH DATABASE
"
GV 3003 ? "K":? "      **** SORT AND SEARCH
MENU ****"
ZN 3015 ? "44      4. SEARCH FOR SURNA
ME"
IW 3016 ? "44      5. SEARCH FOR POSTC
ODE"
OF 3017 ? "44      6. SEARCH FOR DATE"
WI 3018 ? "44      *** CHOOSE A NUMBER *
***";
US 3020 GOSUB KEYPRESS:IF KEY=49 THEN OFF
=15:GOTO 3040
IG 3025 IF KEY=52 THEN OFF=15:SEARCH$="SU
RNAME":GOTO 3200
FG 3026 IF KEY=53 THEN OFF=87:SEARCH$="PO
STCODE":GOTO 3200
LT 3027 IF KEY=54 THEN OFF=109:SEARCH$="D
ATE":GOTO 3200
PY 3028 GOTO 3020
CM 3200 ? "K44TYPE IN THE ";SEARCH$;" TO
SEARCH FOR";
YG 3205 INPUT FIND$:F=LEN(FIND$)-1:R=0
EC 3210 START=OFF+115*R+1
AK 3215 IF FIND$(>)DAT$(START,START+F) THE
N 3240
DR 3220 ? ":? FIND$;" FOUND IN RECORD ";R+
1:?"CONTINUE SEARCH?";
NR 3230 GOSUB KEYPRESS
VD 3235 IF KEY(>)89 AND KEY(>)121 THEN R=R+
1:RETURN
PR 3240 R=R+1
EJ 3245 IF R=LEN(DAT$)/115 THEN ? ":? "END
OF DATA - PRESS A KEY TO CONTINUE":GO
SUB KEYPRESS:RETURN
PQ 3250 GOTO 3210
KY 12001 DIM SEARCH$(8),FIND$(15)

```

FURTHER DEVELOPMENT

The search I have listed here is, as I said, very simple, but it should be adequate for a small data set. There are quite a few different ways of doing a search which you can find in some of the more erudite books on programming, and some use clever algorithms which are difficult to follow. One way of speeding things up if you are doing a search in a large data pool is to sort the data into order first. Once the sort is carried out it is no longer necessary to search through every item of data. You can jump straight to the middle record of the database for the first search comparison. If it equals the search criteria the search is complete straight away. If it is less than the required value then the first half of the list can be discarded and the search continues with a jump to the middle of the remaining data (that is the mid point of the second half of the data). Similarly if the middle data set is greater than the required set the second half of the data cannot contain a match and the search continues in the first half.

You can see that in this method the amount of data left to be searched is halved after each iteration, so the search homes in on the required record very quickly. This method is effective where the data set is large and an efficient sort routine is available, or if the records are always kept in a sorted order.

The power of this type of sort is shown by the fact that 2,400 records can be comprehensively searched with only 12 comparisons, 10,000 records with 14 comparisons! The search can therefore be very fast, but the time taken to sort the database before searching is an overhead that must not be forgotten.

As always, I am prepared to help if you get into difficulties and if there is something you would like to see in future articles please write. Send a SAE if you want a reply - send a cassette or disk if the problem is complex, I will return it. Please be patient if you don't hear from me immediately (my work keeps me away from home more than it used to) but I will get round to you eventually.

Write to: Ian Finlayson
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PROTECT IT!

BUILD A SWITCH FOR YOUR 1050 DISK DRIVE

Before you read any further, please bear in mind that any modification or alteration to your Atari equipment, other than that completed by authorised service agents, renders any guarantee null and void. But if your equipment is more than 12 months old or you want to modify and "risk it", then read on.

This modification to your 1050 disk drive will allow you to write to both sides of a disk, without having to remove the write protect tabs - just think, no more sticky glue marks on your disks, and you can forget about notchers, hole punchers and razor blades. It makes writing to the disk easy as pie, but beware - as with all good things there is always a snag!! It is so easy to use you can forget to check the LED colour and overwrite your master disk!! Disaster!!!

For those dedicated Atarian's who are still with us and who haven't chickened out, I can say that I have used this protect switch set up for the last two years without losing a single disk of data.

TOOLS YOU WILL REQUIRE

Small 15 watt soldering iron and solder
Pointed nose pliers
Small crosshead screw driver
and, most importantly, a clear work bench

CONSTRUCTION

A parts list is shown at the end of this article, descriptions are given together with the code number of each item, which can be found in the current 1990 Maplin electronic component catalogue.

The first task is to construct the switch and LED wiring harness and then to fit it into the drive. Take the length of 10 way ribbon cable and separate 3 wires from it, cut from this a three inch length, trim the 3 wires for about half an inch at

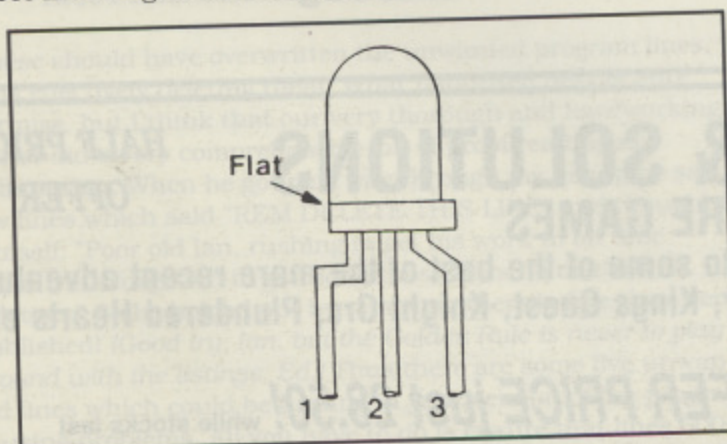


FIGURE 1

each end of the 3 inch piece. Strip the insulation back about 5 mm on each wire (at both ends) and tin the wires with solder ready to be soldered in position.

Cut eight quarter inch pieces off the heat shrink sleeving, and put 3 of them onto each wire, (at one end only), well back down the wire so that the tinned part still shows.

FIGURE 1 shows the multicoloured LED with its pins marked 1, 2 and 3. Note also the position of the flat on the LED's case.

Solder one end of the wires to the legs of the LED, one wire to leg 1, another wire to leg 2 and the remaining wire to leg 3. Slide the heat shrink down over the joints, apply a little heat and the sleeving will shrink and protect and insulate each joint. Each leg of the LED must be isolated from the others.

Take the remaining length of three wires and cut off 16 inches if switch and LED are to be fixed externally or 12 inches for internal fitting. Strip and tin the wire ends as before, both ends. On one end solder the three Minicon terminals and insert them into the Minicon housing. Figure 2 shows the correct positions for the 3 wires in the 4 way housing. You should now have an LED with 3 wires attached and a Minicon connector with 3 wires attached.

Now you must connect these to the switch. Referring to Figure 3 you can see where the six wires should connect to the switch. First though, locate the wire designated 2 on the LED and the wire designated 5 on the Minicon and twist the two tinned ends together, solder them into one connection. Now you only have 5 wires to connect to the switch which can be seen in Figure 3. Take the remaining 5 sleeves and push them over the 5 wires (including the paired wires).

Now solder each wire to the switch in its designated place. Be very careful here, make sure you get it right. As you solder each wire in place, pull down the sleeving and heat shrink in position. You should end up with a completed assembly as shown in Figure 4.

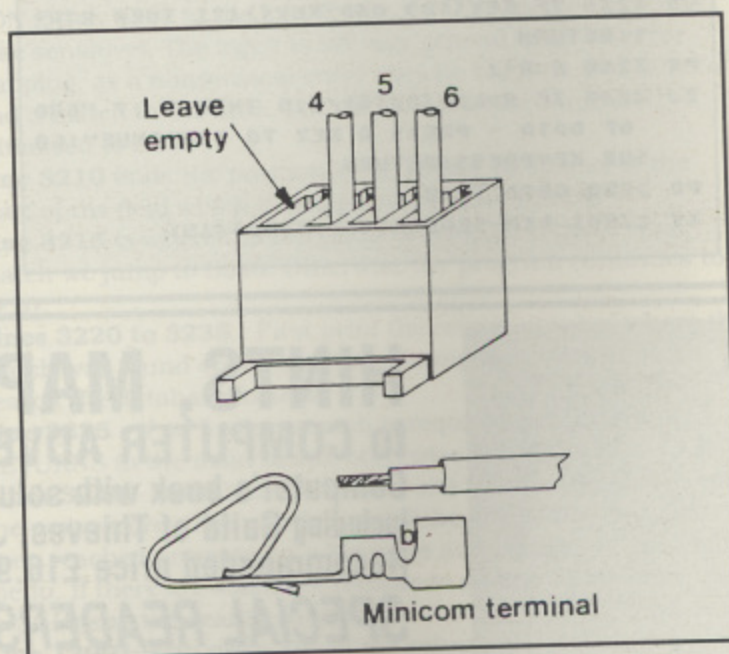


FIGURE 2

FITTING

At this stage you can either fit the assembly inside the 1050 case or fit it into a box that can be attached to the side of the drive with double sided pads.

To fit internally, turn your drive upside down and remove the 4 cross head screws located on each corner of the base. While holding case together turn the drive right way up and remove the top cover by lifting from the rear.

Looking into the drive from the front, you will see 5 brown connecting blocks at the left rear (they have lots of wire going to them from the top mechanism). Locate plug J11, its the one nearest the front.

Carefully remove plug J11 with a pair of long nosed pliers - do not pull it out by the wires, they are very delicate. Once unplugged you can just leave it disconnected, it should not interfere with the operation of the drive. You could tape it to the side if you are worried. Insert the Minicon plug you have just made into J11, ensure the pegs on the base of the Minicon housing are pointing inwards towards the centre of the drive.

Remove the dark grey front surround plate and lay to one side. Using Figure 5 as a guide, decide on the best positions for the LED and the switch. Drill a 3/16 inch hole for the switch and a 9/32 inch hole for the LED holder. Insert the switch into it's hole and fix with the nuts supplied, insert the LED holder into its hole in the front plate and fix with the washer and nut from the rear. Place the front surround back in position and reassemble the drive case.

If fitting the mod externally, feed the cable from the switch around the case and enter via the drive select switch at the rear, then insert the plug as described earlier.

TESTING

Power up the drive, the LED should either be RED or GREEN. If not your connections may be suspect. Move the switch until the LED shows RED. Insert a DOS disk and try to format, if all is well it won't be able to do this, and will error out!! Now set the LED to GREEN, now when you format all should be normal.

Remember RED IS PROTECTED, GREEN IS UNPROTECTED.

Page 6 acknowledges Derek Fern as an 'expert' on Atari hardware and has no hesitation in recommending this modification, however we can accept no responsibility for any damage caused if any reader should attempt this modification.

PARTS LIST

MAPLINS code numbers as shown as their 1990 catalogue

MULTICOLOUR LED	YH75S
LED HOLDER	YY40T
ULTRAMIN DPDT SWITCH	FH99H
MINICON HOUSING 4 WAY	HB58N
MINICON TERMINALS 3 OFF	YW25C
RIBBON CABLE 10 WAY 1 METRE	XRO6G
HEAT SHRINK SLEEVE	BF87U

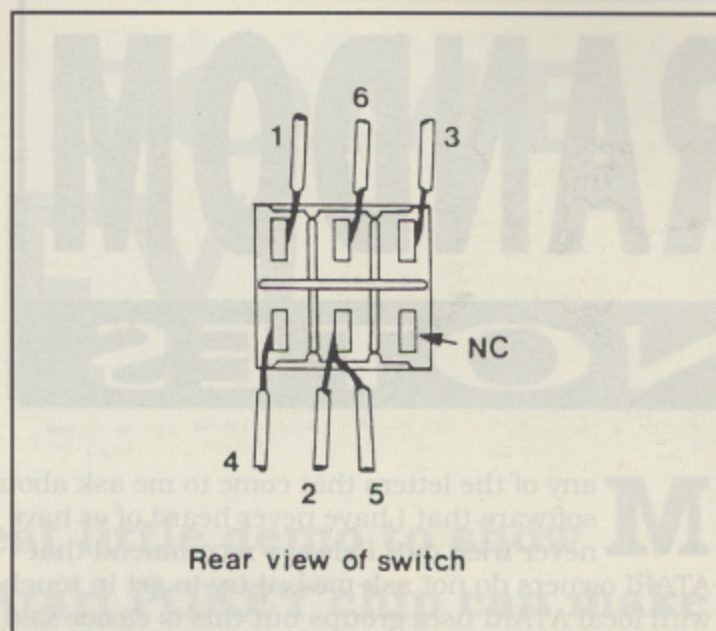


FIGURE 3

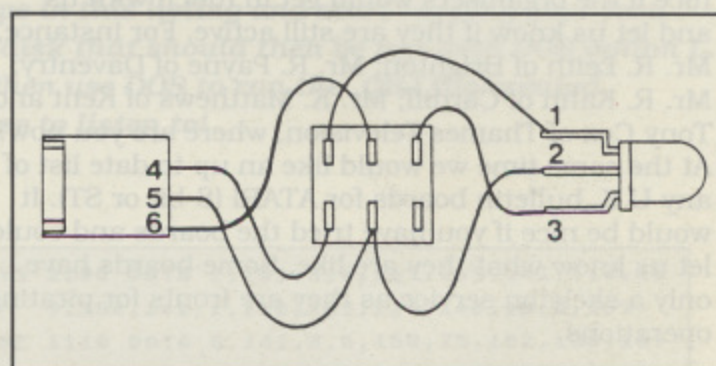


FIGURE 4

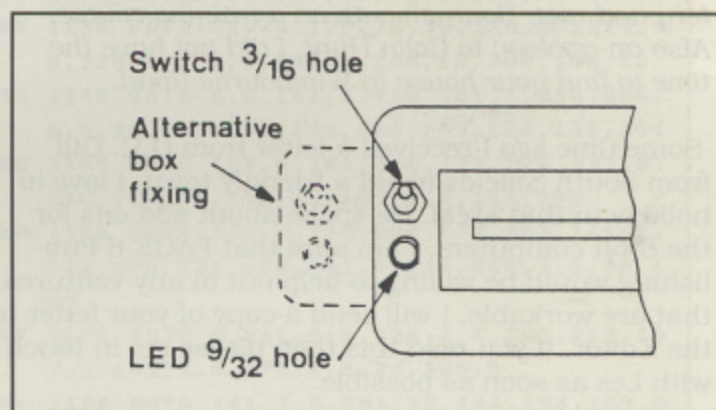


FIGURE 5

Article by Derek Fern

BUILD IT OR BUY IT?

All the components used are readily available from your local stockist, or you can try Maplins, I have quoted their part numbers to assist identification. If however you are not the type to build your own kit, contact me and for £6.50 plus £1.00 postage and packaging, I will supply you with a ready built and tested kit.

Telephone 021-353-5730 for further details.

RANDOM NOTES

Many of the letters that come to me ask about software that I have never heard of or have never tried out. I always recommend that ATARI owners do not ask me but try to get in touch with local ATARI user groups but this is easier said than done. I know that some do exist; I have a list of about fifty groups, but this is an old list. It would be nice if the organisers would get in touch with us and let us know if they are still active. For instance, Mr. R. Leith of Brighton; Mr. R. Payne of Daventry; Mr. R. Kahn of Cardiff; Mr. K. Matthews of Kent and Tony Cox of Thames Television, where are you now? At the same time we would like an up to date list of any U.K. bulletin boards for ATARI (8-bit or ST). It would be nice if you have tried the boards and could let us know what they are like. Some boards have only a skeleton service as they are fronts for pirating operations.

I must say sorry to anyone waiting a reply this month. I have been away to sunny, but oh so blustery and wet, Bournemouth on a training course. Also an apology to Colin Hunt, I did not have the time to find your house in Wimbourne Road.

Some time ago I received a letter from D.C. Gill from South Shields (what a friendly town, I love to holiday in that area). He spoke about add ons for the 8-bit computers. I am sure that PAGE 6 Publishing would be willing to help out in any ventures that are workable. I will send a copy of your letter to the Editor. If you read this then please get in touch with Les as soon as possible.

Did you notice the Silica Shop advert in the last edition of the magazine? Did you spot the item about the mailing list? I have sent away several times for their price list and have been promised many, many times that I would be put on their mailing list, both ST and 8-bit, and that I would receive a list any time a new one was printed. So how come I have to keep asking for this list? Does Silica Shop tear up their mailing list every so often? Has anyone tried their free technical helpline? if so, please let us know how you fared. Again, if you have had recourse to the Advertising Standards Authority for any reason, please let us know the outcome. I am sure that many readers would be interested.

So far I have had no tips about word processors from the readers so I have shelved this project for the time being. Maybe next issue - hint, hint! Recently I helped a friend out with Word Perfect on a Commodore PC. This brought back memories of using a similar product on the 400. Anyone remember Model WP Station (Letter Perfect, 80 column,

**Got any interesting gossip?
Write to Mark at
1, Hollymount, Erinvale,
Finaghy, Belfast BT10 0GL**

Daisywriter and amber monitor)? Letter Writer, Text Wizard or Tiny Text? Many people believe that the 8-bit computers can only handle Basic or assembler. WRONG! How about Forth (seven types in 1983 including Fig-Forth), LISP, PASCAL (ISO draft standard), PILOT (a LOGO type language) or an obscure turtle type called WSNF? Whether they can be obtained now or not is another matter.

Now for some recent tit-bits gleaned from all those computer magazines I have received this month

It looks as though there might yet be an ANSI standard for the C language and it could well be totally international, as opposed to American. Great for all those C programmers. If this has interested you then how about a course of ten 30 minute videos on C? O.K. if you can afford £850! Better still, how about version 4 of Flight Simulator for only £45? With this one you can design your own plane dimensions and propulsion system and a dynamic weather generator which 'helps you crash more easily'. Unfortunately, this will be for the PC. However, we do hope the ST will not be forgotten. Again for the PC at the moment is Lattice C development system V6.0.

If you are a LISP programmer, how about the Europol 90 LISP conference on the 27-29th March in Cambridge? Call Applied Workstations Ltd - 0306 889485.

Two recent books to come out are 'Out Of The Inner Circle', by Bill Landreth (once known as 'The Cracker') who was one of the most well known hackers a few years ago. This second edition from Microsoft Press (£8.50) tells about data, computer and network security as well as viruses. The other side of the coin is a book called 'Preventing Piracy' by Ernest Keet (Addison Wesley, £33.95). Probably more for a firm or data manager, but very cheap if you can find it in the local library!

Believe it or not, I still do not know one thing about music, synths, sequencers etc. etc. So, please send any musical enquiries to John Davison who may be able to help you. Nor do I know anything about weird and wonderful disk drives, printers, monitors and such. All I can suggest is that if you buy something for your system make sure you see it working first on an ATARI computer system and make the shop send a written guarantee that it is compatible or that you will get your money back.

I have always wondered why people suddenly stop computing. During the past year I have suffered from a surfeit of keyboard bashing and any spare time I get at the moment is spent away from the computers. I think the best thing would be a good long holiday away somewhere so if you don't see me around for a while, you will know that I am off on a long earned rest. Any idea where exhausted Atari owners go to recuperate? ●

GIVE IT SOME POKEY!

Phil Cardwell presents a neat little demo to show the incredible sounds that the Atari POKEY chip can make

Fancy some great music with a good back beat? Just type in this listing and start tapping your feet! The listing is in Basic and will create an Object file on disk that should then be run with DOS option L. Type in the listing and SAVE a copy, run it and then use DOS to run the .OBJ file created. That's all, but it's nice to listen to!

```

EH 0 REM *****
DT 1 REM *          POKEY SOUND          *
LQ 2 REM *          by                    *
ZK 3 REM *          Phil Cardwell        *
TB 4 REM *
EM 5 REM *****
JW 6 REM * NEW ATARI USER -   APRIL 90 *
EO 7 REM *****
NN 8 REM
NO 9 REM
JU 10 OPEN #2,0,0,"D:MUSIC.OBJ"
QB 20 FOR A=1 TO 533:READ B:PUT #2,B:NEXT
    A
LU 30 CLOSE #2
YS 40 END
OV 1000 DATA 255,255,224,2,225,2,102,127,
    102,127,97,128,169,125,141,48,2,169,12
    7,141
CZ 1010 DATA 49,2,169,0,141,198,2,169,15,
    141,197,2,76,0,128,112,112,112,66,136
FI 1020 DATA 127,2,2,65,125,127,209,210,2
    10,210,210,210,210,210,210,210,210
    ,210,210
NW 1030 DATA 197,0,0,0,0,0,0,0,0,0,0,0,
    0,0,0,0,0,0,0
AT 1040 DATA 0,0,0,0,0,0,252,128,176,239,
    235,229,249,128,173,245,243,233,227,12
    8
KE 1050 DATA 252,0,0,0,0,0,0,0,0,0,0,0,
    0,0,0,0,0,0,0
UJ 1060 DATA 0,0,0,0,0,0,218,210,210,210,
    210,210,210,210,210,210,210,210,21
    0
NI 1070 DATA 195,0,0,0,0,0,0,0,0,0,0,0,
    0,0,0,0,0,0,0
XD 1080 DATA 0,0,0,0,0,0,234,234,234,234,
    234,234,234,169,3,141,15,210,169,99
NF 1090 DATA 141,8,210,169,1,141,0,6,169,
    0,141,1,6,141,2,6,141,7,6,169

```

```

YS 1100 DATA 2,141,3,6,169,255,141,5,6,16
    9,164,141,1,210,169,128,141,10,6,169
NE 1110 DATA 6,141,8,6,160,75,162,128,169
    ,6,32,92,228,169,192,141,14,212,96,234
JP 1120 DATA 234,32,20,129,173,20,208,41,
    14,240,6,169,1,37,20,240,6,32,100,128
MT 1130 DATA 32,74,129,76,98,128,93,129,9
    5,228,173,0,6,201,1,240,15,169,160,13
IS 1140 DATA 0,6,141,3,210,141,7,210,206,
    0,6,96,169,204,133,203,169,128,133,204
QG 1150 DATA 169,6,141,0,6,172,2,6,192,8,
    240,27,165,203,24,109,1,6,133,203
BW 1160 DATA 144,2,230,204,177,203,141,2,
    210,170,232,130,141,6,210,230,2,6,96,1
    69
KF 1170 DATA 0,141,2,6,206,3,6,208,212,16
    9,2,141,3,6,173,1,6,24,105,8
BK 1180 DATA 141,1,6,201,72,144,194,169,0
    ,141,1,6,240,187,144,144,72,144,144,72
NC 1190 DATA 144,72,144,144,72,144,144,72
    ,144,72,144,144,72,144,144,72,144,72,1
    44,144
QU 1200 DATA 72,144,144,72,144,72,182,91,
    91,182,91,91,182,91,144,144,72,144,144
    ,72
PI 1210 DATA 144,72,121,60,60,121,60,60,1
    21,60,144,144,72,144,144,72,144,72,162
    ,61
NA 1220 DATA 81,162,81,81,162,81,173,7,6,
    208,16,173,10,210,201,5,240,1,96,169
KP 1230 DATA 255,141,5,6,141,7,6,173,4,6,
    56,237,5,6,141,4,6,141,4,6
RH 1240 DATA 141,0,210,144,1,96,206,5,6,2
    08,8,169,0,141,7,6,141,0,210,96
KD 1250 DATA 173,8,6,208,14,141,9,6,173,1
    0,210,141,4,210,169,6,141,8,6,13
NI 1260 DATA 94,129,102,129,10,6,141,5,21
    0,206,8,6,96

```


FANTASTIC SOCCER

No prizes for guessing what FANTASTIC SOCCER is about! Zeppelin Games are well and truly geared up for the World Cup and to prove it they've produced a graphical simulation of a soccer match in progress. Most such simulations in the past have centred on an angled '3-D' view of the proceedings, but Zeppelin have broken away from tradition and opted for a direct overhead perspective of the stadium. No 'stick man' players, cheering crowds or advertising boards - just a window from above providing you with an approximately one-tenth

scrolling view of the entire pitch.

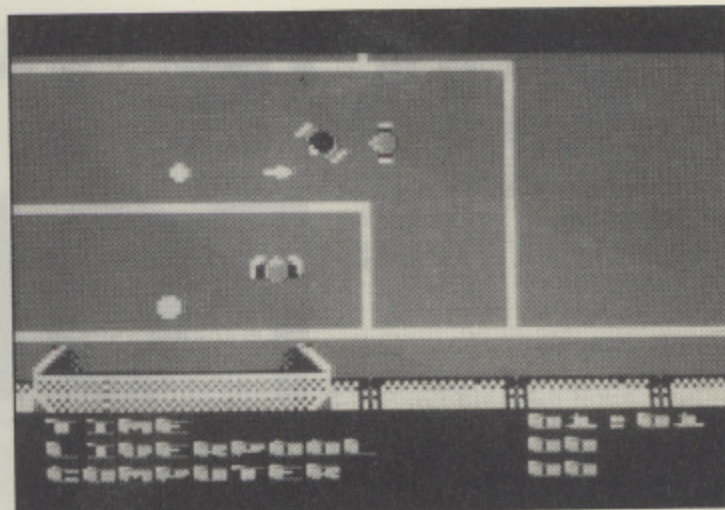
The inherent problem with computerised football is that, as everybody knows, it's a game for two teams of eleven players and, no matter how hard you try, it's just impossible to have them all controlled by two joysticks! To overcome this problem, you have to rely on the computer to decide which man you have command of at any particular time, and it's not always the one that you hoped for. In Fantastic Soccer, the 'active' player is highlighted by a conspicuous arrow and the computer keeps your other team members on their toes as you try and keep up with the action. Fortunately, it seems reasonably helpful in positioning the other players and also supplies you with a suitably gifted goalie.

First thing to do is select the number of human players and

the length of the match - from a quick runaround over ten minutes to a full-blown ninety minute slog. Then, choose a team from the eight alternatives, decide on a formation, hit the trigger and you're off! You have full control over tackles, throw-ins and corner kicks. The joystick button is used to alter the strength of shot. The controls are quite easy to manage although, like other football simulations, the overall concept does not lend itself to a single player game. Find some opposition of the

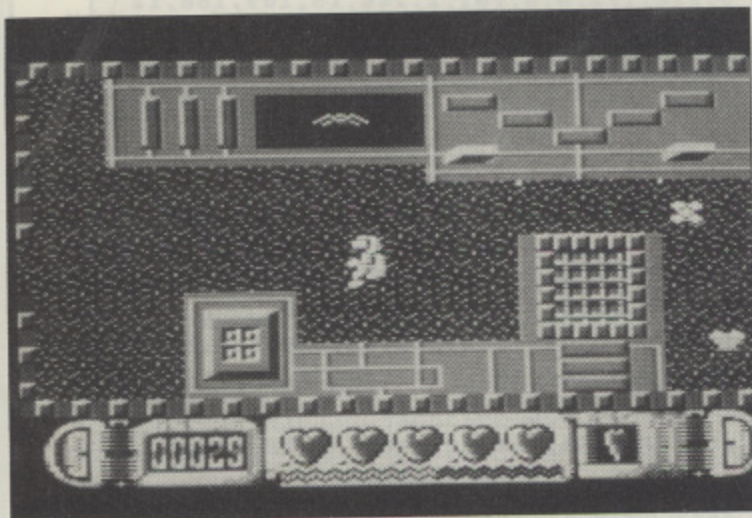
human variety and the whole exercise becomes much more exciting.

Fantastic Soccer is probably the nearest you can get to the real thing on your Atari (and that's not very near at all!). Zeppelin have, yet again, come up with a novel approach to an age-old theme and done so with the high standard of presentation that we have almost come to expect from them. I'm pleased to say that Fantastic Soccer does live up to its less than modest title!



Title: **FANTASTIC SOCCER**
Publisher: **Zeppelin Games**
Price: **\$2.99 cassette**
Players: **1/2**
Loading: **16 minutes**

Reviewed by Paul Rixon



A remote genetic research laboratory suffers a catastrophic accident - and is overrun by hordes of uncontrollable organic mutations. Crisis looms as a failure develops in the air circulation system and the lives of resident scientists are endangered. Armed with a compressed gas can, you bravely dash to the rescue. Hardly the most credible of plots, and when I add that this is a game called HEARTACHE on the inlay card and 'Heart Break' when you load it in, you'll appreciate that Atari haven't

exactly done a terrific job on the documentation!

Overlooking the rather obscure reason for it all, the aim of Heartache is to guide a heart-shaped "clearance pod" through a series of corridors which are supposedly infested by the dreaded mutants. To clear each corridor you have to successfully 'blow' the pod from one side of the screen to the other, ensuring that it doesn't come into contact with any walls or nasties. To achieve this aim, our jet-packed hero must position himself carefully behind the clearance

AFFAIRS OF THE HEART

pod before letting rip with the compressed gas. The pod then shoots off at a speed roughly corresponding to the strength of the gas and, mishaps excepted, you're all set for another blast. Each screen has a tight time limit applied so you can't afford to hang around!

Some of Atari's recent releases in the 'Action Games' series - Speed Hawk and Tiger Attack, for example - have been nothing less than superb. Although by no means a disaster, Heartache isn't quite in the same league. For instance, the main character, whose movements do not seem at all natural, is poorly defined and coloured. An irritating (albeit quite well programmed) tune plays continuously throughout the game and the fact that you can't turn it off has a negative effect on the all-important playability factor.

It seems to me as though Atari may have ignored the author's original intentions and released Heartache without any consultation. Frequent references to someone called 'Lisa' during the game suggest the intended story was perhaps more of a romantic rescue. This could explain the feeble plot and title inconsistency between program and packaging.

Not one of Atari's best - but not to worry! The company apparently have several new goodies in the pipeline and if their recent output as a whole is anything to judge by, these should be well worth waiting for. Start saving today!

Title: **HEARTACHE**
Publisher: **Atari Corp.**
Price: **\$7.99 cassette**
Players: **1**
Loading: **13 minutes**
Reviewed by Paul Rixon

GREEN BERET

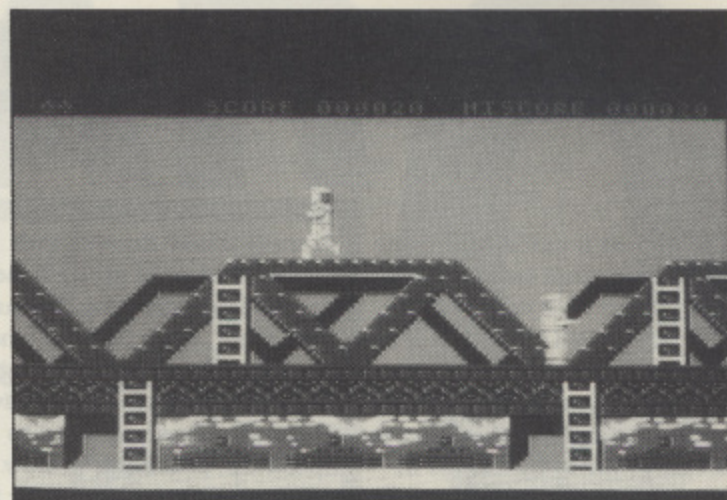
I magine Software are better remembered for the games that they didn't release on the Atari than those that they did. Despite churning out games for the lesser brands of micro, they only ever managed to produce a couple of titles for the best machine of the lot.

One of these was GREEN BERET, a conversion of the Konami arcade game in which you command a highly trained combat soldier with a simple yet challenging mission - to infiltrate a series of strategic defence installations. Your objective is to control the Green

Beret through each military base avoiding bullets, mortar bombs and missiles as you go.

The biggest obstacle is the sheer number of enemy soldiers who dash across the screen and even follow you up ladders should you contemplate escape. One way out is to perform an enormous leap via a flick of the joystick, but more often than not you'll end up landing in a dangerous situation with no time to react. Alternatively, you can eliminate the opposition with your trusty field knife - but this requires perfect timing and the success rate isn't high. Get it wrong and the game jolts to a disturbingly sudden halt. Bullets are best avoided by a ducking tactic, but again this leaves you open to attack from other quarters. Your triplicate lives don't last for long!

The background scenery isn't

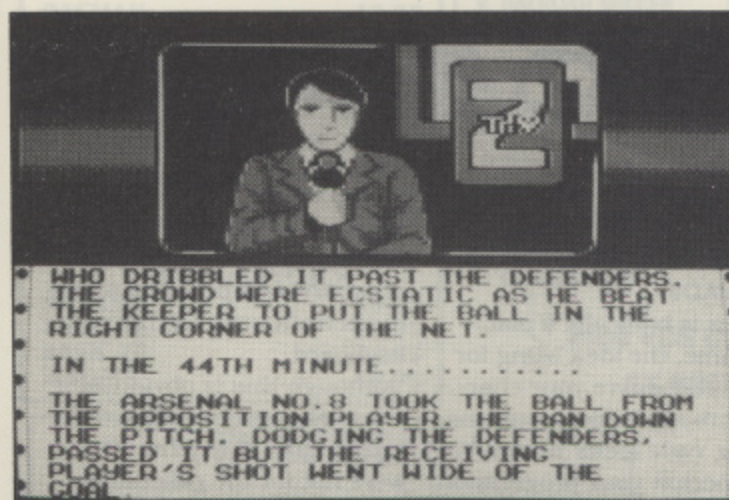


bad at all, consisting of lots of interesting objects for you to climb, jump and hide behind as you explore the various levels. Unfortunately, the scrolling is a trifle on the jerky side and the joystick response is less than perfect. Sound? Well, apart from an atmospheric drum beat all the way through and a siren at the start of each level, there isn't a lot of it to speak of.

When Green Beret was released as a full priced game, I viewed it as a big disappointment. Aside from the unspec-

tacular graphics and sound, it is ridiculously difficult to master the first screen, let alone progress to the second level. However, like all challenging games it's possible to beat with patience, determination and, especially, practice. So, if you're a patient, determined person with a good deal of time to spare, Green Beret could be the game you need. If not, keep an eye open for Imagine's Arkanoid on the same label. Check out the review in Page 6 issue 31.

Title: **GREEN BERET**
Publisher: **The Hit Squad (Imagine)**
Price: **£2.99 cassette**
Players: **1**
Loading: **15.75 minutes**
Reviewed by Paul Rixon



Yet another football managerial game! If you didn't fancy shelling out nine pounds for Zeppelin's Kenny Dalglish Soccer Manager (KDSM - reviewed last issue) there's now a budget alternative from the same company - and to me it looks every bit as good!

WORLD SOCCER has you managing a British football club (you can choose your favourite team from a list of fifteen) through the leagues of the ultimate World Soccer competition. Like KDSM, the game is graphically orientated

with all player interaction taking place via a joystick 'pointer' - there is no keyboard input. There are ten principal options to choose from, which are represented by carefully shaded icons surrounding an equally artistic drawing of the cup. Making a selection couldn't be easier - just point, click, and you're away!

The Bank Manager is a generous fellow and will cheerfully give you an enormous loan to pay for those much needed extra team members, when offered by the Scout. If the bank balance gets too low, you

WORLD SOCCER

can easily sell unwanted players. The Scout will assign your team a rating for defence, mid-field and attack, and suggest ways of improving its performance. The Medic will keep you up to date with the progress of injured players and decide when they can return to work. You can choose to have detailed textual commentaries during each match from Joss MacDonald, 'ZEP TV'S top sports reporter' (good graphics here!), or you opt for an instant display of the match results. Substitutions can be made at half time should a player be injured - providing you have previously designated an appropriate man in the team selection.

Further options allow you to store unfinished games on cassette for later re-loading, view the league tables and current team formation, and select players for the forthcoming match based on their

age, ability, speed and fitness. Before you proceed with the match, you are advised of the strengths and weaknesses of the opposition and can therefore decide whether or not to go back and revise your formation. After the match, there's a round up of the other results for the day.

Having compared WORLD SOCCER with KDSM I have to say that apart from the 'goal highlights' of the latter, there's not really an awful lot to choose between the two - apart from the price, that is. I've little doubt that this deserves to be another winner for Zeppelin.

Title: **WORLD SOCCER**
Publisher: **Zeppelin Games**
Price: **£2.99**
Players: **1**
Loading: **16 minutes**
Reviewed by Paul Rixon

MOUNTAIN BIKE RACER

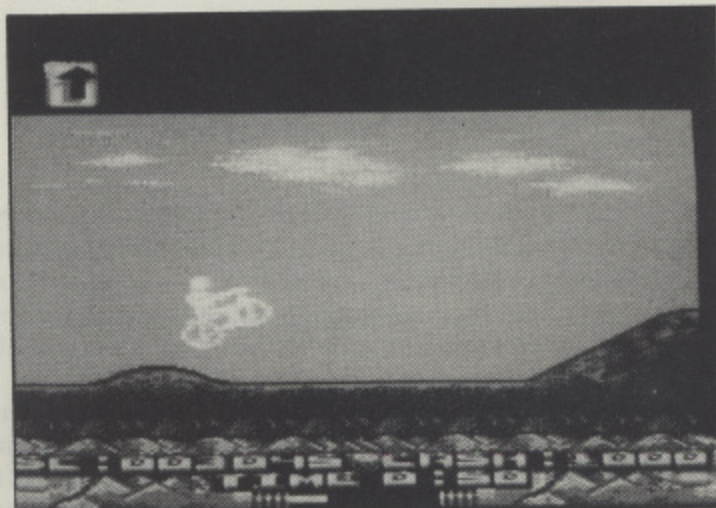
At last a game from Zeppelin that has nothing to do with football!

MOUNTAIN BIKER RACE is a simulation of all-terrain cycling in a similar mould to the recent release from Alternative Software. No split screens in this one though - it's strictly for the solo cyclist.

A jazzy theme tune kicks off the proceedings (nice to hear some sound effects from Zeppelin!) and a press of the trigger takes you straight to the action - a horizontally scrolling, side-on view of the intrepid mountain biker. The cycle is cleverly animated and the

scenery nicely drawn, with digital read-outs at the base of the screen indicating the current score, cash balance and time remaining for the section.

Joystick controls are relatively simple - push forward to speed up, pull back to slow down and press the trigger to perform a 'jump' (who said anything about realism?!). To prevent the biker from ending up in a heap, you have to negotiate each obstacle at precisely the correct speed - dead slow for walls, top speed going up hill, and slower coming down. In addition there are swamps, rocks and spikes requiring skill and accurate timing to avoid a disaster. Get it wrong and you'll lose a lot of time recovering from the mistake - and still be forced into a second attempt. At the end of a section you're awarded with a cash bonus based on the time outstanding. You can use



the money to buy various goodies which can hopefully assist you in the following stages. These include a puncher repair kit, which seems to protect you against one particularly deflating problem (groan!), and a time boost - useful for the later, more difficult sections.

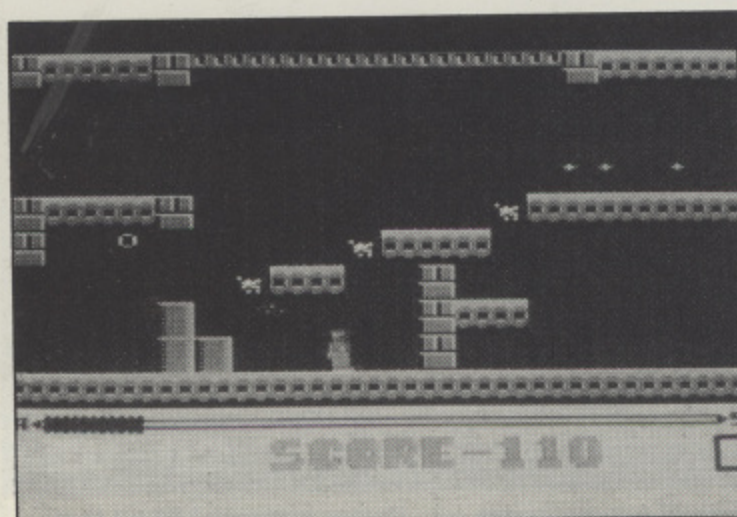
That's essentially all there is to Mountain Bike Racer. It's a straightforward race against the clock for one player and can't really be compared with Alternative's release which has many more options and more complex controls. The game

relies heavily on the visual effects for its appeal, but like most of Zeppelin's software, it succeeds on this front with style. Once you start to progress through the initial stages, the game becomes surprisingly addictive.

It's good to see Zeppelin Games not only continuing to produce a steady flow of 8-bit software, but also maintaining the exceptional standards that have become a trademark of the company. Zeppelin's programmer Ian Copeland is to be congratulated for yet another super game.

Title: **MOUNTAIN BIKE RACER**
Publisher: **Zeppelin Games**
Price: **\$2.99**
Players: **1**
Loading: **15.5 minutes**

Reviewed by Paul Rixon



Another game from B.Ware by the 'Daz' programmers who seem to write most of the in-house software released by Hinckley based computer dealer B.Bytes. Like other programs in the range, ESCAPER is supplied in a disk wallet with a crudely produced inlay card bearing a hastily written(?) scenario for the game. Every expense spared, you might say.

It transpires that the Earth is about to be zapped into a zillion pulsating cosmic ecto-atomic particles (or rocks, even)

but you've been granted a chance to escape by the evil Zargoid, who seems to think that anyone intelligent enough to own an 8-bit Atari is obviously worth preserving! Zargoid has transported you to the long lost city of Atlantis and challenged you to defeat his elaborate defences. Succeed in the mission and you can escape through an ejector tube to a safe galaxy. Simple, eh? Unfortunately, what isn't mentioned in the plot is the atrocious racket which accompanies every second of the game, enough to make even

ESCAPER

the simplest objective a painful experience! When I tell you that the sound is bad, I really mean BAD!!

Escaper is basically a platform game, the idea being for you to manoeuvre your character through various screens, opening 'code locks' as you go, which permit your progression onto subsequent locations. Ensuring that the task isn't too straightforward, there are fire pits, mid-air explosions and an extremely annoying 'blob' which chases you around each screen, zapping energy from your limited quota. All of these nasties are clearly best avoided!

Aesthetically speaking there's not a lot to get excited about but most of the graphics are quite well done and some thought has gone into the design of the ten different locations. On the negative side there are signs of sloppy programming, such as "Attract

Mode" colour cycling not having been disabled after joystick input. It's also possible to crash the computer by pressing certain keys on the keyboard.

Although this is obviously a relatively amateurish program, I have to say that if it were not for the ridiculous sound effects I would almost consider it a recommended purchase. B.Bytes deserve thanks for their 8-bit support, but I do hope they won't neglect the quality control aspects of the business in order to get a mass of products on the market. Yet more from B.Ware next issue.

Title: **ESCAPER**
Publisher: **B.Ware Software**
Price: **\$5.99 cass/disk**
Players: **1**
Loading: **1.25 mins (disk)**
Reviewed by Paul Rixon

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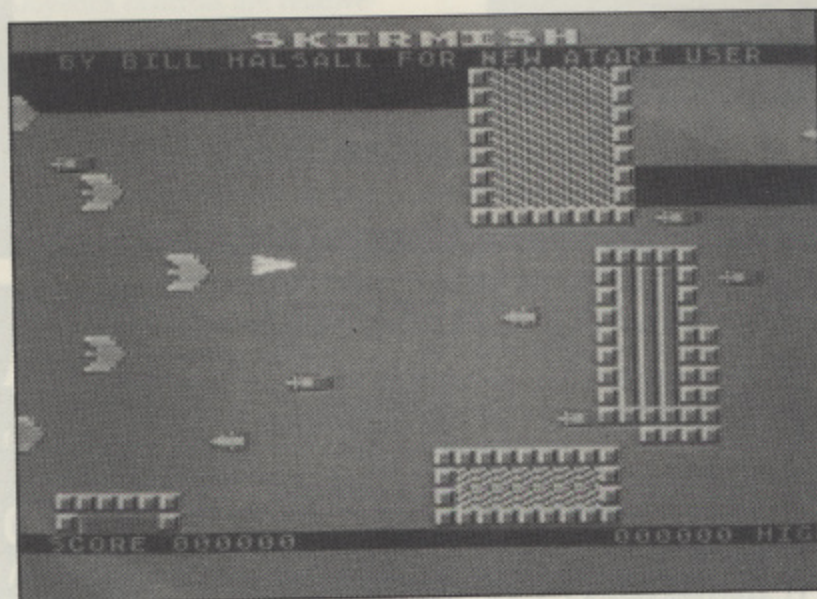


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XL/XE TYPE-IN

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All your planes are controlled simultaneously using a joystick, the plane under control being highlighted in white. The bombers fly in strict formation but the fighter can be moved vertically. Move the joystick left then vertically to select the required bomber and press the button to drop a bomb. Move the joystick right then vertically to control the fighter, pressing the button to fire an air-to-air missile.

To pause the game press **SELECT** then press the joystick button to continue. The game ends when all your planes are gone. Press the button to play again.

SCORING

Aerial mines, missiles and fighters
10 pts
Buildings
20 pts
Tanks and rockets on the ground
100 pts

TYPING IT IN

Both cassette and disk users should type in Listing 1, **SAVE** or **CSAVE** a copy, then **RUN** the program. The program will check each line of data and inform you of any errors. Correct any errors and **RUN** the program again until all errors are eliminated. When this is done answer the cassette/disk questions accordingly to create a boot tape or binary disk file.

Cassette users should load the boot tape created by firstly removing all cartridges and then turning on the computer while holding down the **START** key (XL and XE owners should hold down **OPTION** as well). Press **RETURN** and the tape will load and run automatically.

Disk users should also type in Listing 2 and save it on the same disk as the binary file created by Listing 1. **RUN** the Listing 2 program with the disk in drive 1 and the game will load and run automatically.

HM 1010 DATA BD5F208DAD4BD5D0AD4BD55208D0A
D48D0AD48D0AD48D13D0E8E00AD002A20086BC
68AA6840DADCDADCDADCDADCDADCD30,6632
FE 1020 DATA 304040505040403030A5BDF01CA5
BE38E901290385BE8D04D4C903D00CA200FE08
34E8E8E8E045D0F6A92B8D0002A920,5450
GN 1030 DATA 8D01024C62E47046803442A030D4
0040D40042540044540046D40048D4004A5400
4C54004ED40050D400525400545400,3772
AX 1040 DATA 56D40058D4005A54005C54005ED4
0060D4006254006454006654006854006A5400
6C42D03041003455576B6B6B6BFFFF,4149
TO 1050 DATA 9E79E79E79E79E7955AAFF55AAFF
55FF6B6B6B6B6B6B6B6B6BAAAAAAAAAAAAAAAAA7B
DEB7ED7BDEB7ED5569965555699655,7255
LP 1060 DATA 5555AAAAAAAAAFFFF55556A6A6A6A
7FFF5557ABABABABFFFF000F2A2955292A0F00
FCAA6A6A6AAAF0002092509020000,5204
BH 1070 DATA 2AA8555555A82A00FFFFFFFFFFFF
FFFF00147BFE4BECF33C002A1C7F1C2A000000
F8F87C7C3E3EFFFF3E3E7C7CF8F800,6255
ZH 1080 DATA 0000C070FE3FFE70C00000000007
3FEA3F070000000000E1C7FFF7F1C0E00000000
00070F3F0E1C3D7FFF7F3D1C0E3F0F,3024
RQ 1090 DATA 0700000022390022292C2C002021
2C33212C2C00262F32002E2537002134213229
0035332532332B29322D2933203323,1671
MO 1100 DATA 2F32250020292728000010101010
1010A90000D2F0220B02920BE22A221BDB4219D
A730CA10F7A207BDD6219D08834CA10,3856
VH 1110 DATA F7A251BD96209D0034CA10F720DD
22202923A205A9109DDC30BDEA219DF130BDD0E
219DD630BDE4219DF830CA10E6A900,5992
MU 1120 DATA 85B0206E26A9608D00D085B120EB
24A9388D07D48DF402A200BD00E09D0038BD00
E19D0039E0D0F1BDE0209D003AE8E0,5917
SO 1130 DATA 80D0F5A9038D1DD0A9018D6F028D
0CD0A90085BC8D08D2A9038D0FD2A9008D3002
A9348D3102A200BDB5229DC002CA10,5219
ZU 1140 DATA F7A93F8D2F02A069A220A907205C
E4A9C08D0ED4600EDC00002C20047446A900A2
0F95B095C0CA10F9A900A885CBA230,5350
DC 1150 DATA 86CC91CBC8D0FBE8E087D0F460A2
00A000B9702199203D99483D99683D99883D99
A83DE8C8C010D0E0E050D0E260A900,6809
UA 1160 DATA 85CB86CCB1CB60AD0AD229071869
0260AD0AD2291F38E90990F618696FAA60AD0A
D238E90A90F8A060202D24A90385B2,5421
JH 1170 DATA A9C185B385B405B685B7A9C285B5
20BE23E685A5B5C9C8D0F585B385B7A9C985B4
A9CA85B620BE23C6B2D0D4A91405B2,7713
BG 1180 DATA A9CC85B4A9CB85B320A323A9CE85
B4A9CD85B320A323C6B2D0E6A000208323C8D0
FA60A90085CB85CDA27086CCA94085,6951
DM 1190 DATA CEB1CB91CDE6CE91CDE6CCE6CEE6
E087D0EF60201023201F2320FE22D0F5C820FE
22D0EFA5B491CB88A5B391CB602010,7312
NF 1200 DATA 2385B820072365B085B9201F2385
BA20072365BA85BBA90085CBA6B8A4BA5B420

New Atari User - Issue 43

SKIRMISH!

```

2024C0A5B3202024C8C4BBD0F8A5B6,5823
VD 1210 DATA 202024E0A4BAA5B4202024C8A5B5
202024C8C4BBD0F8A5B6202024E8E4B9D0E4A4
BAA5B4202024A5B7C8202024C8C4BB,6414
EH 1220 DATA D0F8A5B62020246086CC91CB60A9
0085BA20102386B286B8204D24206024A5BBC9
E0D0F4204D24A6B220632460A5BAA8,5799
BK 1230 DATA 18692085BB200224C8C4BBD0F884
BA6020102386B9A6B8E4B9F014300A208224CA
E4B9D0F8F008206224E8E4B9D0F886,6565
SG 1240 DATA B860A90085CBA94F86CC202024C8
202024E820202488202024CA60AC0834208323
60A5B0D079AD78022904D00EA5CAD0,5002
EB 1250 DATA 0AA90185B02064254C1F25AD0530
D020AD78022901D00CA5B1C920F01B38E9024C
E324AD78022902D00EA5B1C9CEF008,4862
TB 1260 DATA 18690285B120EB244CFC24A200A4
B1BD0802199003CC8E8E00CD0F460A5BFD01FAD
8402D02AAD0530D015A96785BFA6B1,5936
UQ 1270 DATA 86C0BD053B09029D053BA9018D06
30A6BFF00CE08BF009E8E8E886BF8E04D060A9
0085BFA6C0BD053B29FC9D053B60A5,5795
KL 1280 DATA B0F07BAD78022908D00DAD0530D0
0085B0206E264CBE25A5142903D03FAD780229
01D012A4C4F0268884C4B90830D0F4,5188
RX 1290 DATA 2061264C9C25AD78022902D01FA4
C4C004F012C884C4B90030D0F24C7025AD0030
D0EAF0DBAD0430D0CAF0D4A5C1D01E,6068
UH 1300 DATA AD8402D050A6C4BD0030D012BD51
2685C2BD562685C3BD5B268D6026D00EA5C1F0
33C928F0302901F002E6C3E6C2A5C2,6181
OE 1310 DATA 8D05D0A4C3A200B9063B29F31D4C
2699063BC8E8E005D0EFA5C10A8D02D2A9A88D
03D2E6C16020212AA4C3A20086C10E,5906
CV 1320 DATA 02D28E03D2B9063B29F399063BC8
E8E005D0F2A5C230E920E5BE4A4A186D083485
CBAD602685CCA000ADC802090A8D1A,5571
UT 1330 DATA D0B1CB100E38E9CB9006208F294C
4326209329A95091CB06CC91CB600000040800
384858483828486888A84850586068,4676
OR 1340 DATA 40207726A5C40AAA90E9D552060
207726A90E8DC00260A208A9DA9D5520CAC10
F9A9CA8DC00260AD0E302901F0F8A5,5382
OK 1350 DATA C5F0034C062720742720142AAD0E
30F0E6AD0C304A85B2AD0E30C901D010A96885
CDA92185CEA9018D07304CD226A98C,4977
FB 1360 DATA 85CDA92185CEA9020D0730A5CAF0
03EE0730AD0AD2290F0D0830A93E05CCA000AD
0AD22907AABD5627186D083085CB10,4989
QA 1370 DATA 02E6CCB1CD91CBC0C007D0F7C6B2
A5B210D0A9F085C5A5C538ED073085C58D02D0
8D03D0AD08D0290CF008203025A4C0,6616
TT 1380 DATA 4C5027AD0DD0290CF01A2904F008
A5C5206E284C3B27A5C5207628A6C9BD5626A8
4C5E27AD0CD0290CF00A209027A4B1,4780
LH 1390 DATA 88884C5E2760203A546E6E88A2BC
A900AA99FB3D99FB3EC8E8E01AD0F42096298D
1ED060207A274C8527A900A2209D00,5520
IE 1400 DATA 3EE8D0FA60A900A2209D003FE8D0
FA60A2008AA4B199003CC8E8E00ED0F78E1AD0
8E053086B0A5CAD00320642560207A,6074

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ZP 1410 DATA 27A9EC85C58D093020372885C660
AD0E30C902D0F8AD0930D00B20142AAD0E30F0
EB20AE27AD0930F0F0A5C5C920F0EA,5697
IC 1420 DATA C6C5205628A5CAF002C6C5A200A4
C6BD942199003EC8E8E00CD0F4A5C58D02D0AD
0DD02904F00CA5C585CFA5C6206A20,6433
RV 1430 DATA 4C2A28AD0CD02904F0062090274C
2A28AD08D02904F00F203025207A278D1ED08D
093020962960A5CAF00BAD0AD2290F,4177
MT 1440 DATA D004A5B1D00CAD0AD238E97290F8
692029FE8D0A3060A5C638ED0A30F0089003C6
C660E6C660203728603008A5CF38E9,5754
TI 1450 DATA 284C7B28A5CF49FF186979A4A4A4
4A85C9AAFE0030BD5626A8A900AA99013D9901
3FC8E8E00ED0F48E1AD0A5C9C5C4D0,6048
JM 1460 DATA 0EA580F00A20582AA5CAD0032064
2560AD0E30C904F006AD0B30D06E60AD0930D0
0B20142AAD0E30F06020AE27AD0930,4531
GD 1470 DATA F0FBA5C5C988F00CC6C52901D006
A5CAF002C6C5205628A200A4C6BDA02199003E
C8E8E014D0F4A5C58D02D0AD0B30D0,6657
JZ 1480 DATA 29A5C5C988D023208527A9018D06
30A4C684C0A93099043F990E3FA9C099093F8D
0B30A98685C78D03D0AD0B30F013A5,5342
TE 1490 DATA C738E90385C78D03D0C920D005A9
008D0B30AD08D02904F00F207A278D09302096
298D1ED0203025AD0DD02908F011A5,4654
GC 1500 DATA C785CFA5C8690F206A2820212A8D
1ED0AD0CD02906F017A200A4B18A99023FC8E8
E007D0F720902720212A8D1ED060A2,5329
AG 1510 DATA 04D0805209629A205CAFEDC308DDC
30C91AD009A9109DDC30E000D0EC20212A60A2
0030BDDC30FDEA21F0049014B005E8,5729
OQ 1520 DATA E006D0EEA200BDDC309DEA21E8E0
06D0F560A5CAD000A5132907D033E613AD0E30
0D0B30D029AD0AD22903AABD102A8D,5604
CO 1530 DATA C2028DC302E88E0E30EE0C30AD0C
308D0D3020742785C58D02D085C78D03D06030
BA8C00AD0D30F004CE0D30608D0E30,4769
QW 1540 DATA 60A93C0D0F308D04D260AD0F30F0
08CE0F304A4A8D05D2AD0630F01BA9A88D01D2
EE0630AD063029078D06300A0A0A8D,4353
LP 1550 DATA 00D2D0030D01D260A204BD0030F0
0CCA10F886CAA90085B0206E2660A9008DDC30
20F021A90185BD0513A9018D1C0220,4980
QZ 1560 DATA D22920A224203F25209824208826
20BE2720B020202A2A20582AAD0F300D0630D0
09AD053025CAF002D025AD1C02D0FB,3963
DM 1570 DATA 854DAD1FD0C905D0C1A90085BD0D
01D28D03D28D05D2AD0402D0FBE68D4C7A2AA9
0065BDA9328D1C02AD1C02D0FBAD84,6055
CB 1580 DATA 02D0FB4C712A0000000000000000
000000000000000000000000000000000000
000000000000000000000000000000000000,692
YZ 10 REM LOAD AND RUN ROUTINE FOR
SKIRMISH
GJ 20 OPEN #1,4,0,"D:SKIRMISH.OBJ"
OC 30 POKE 850,7:POKE 852,0:POKE 853,32:P
OKE 856,255:POKE 857,255
SN 40 X=USR(ADR("hhhllvv"),16)
BQ 50 CLOSE #1:X=USR(0232)

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THE TAPESTER Mk II

Mauro Maestromzi updates last issue's program with cheats for even more games!

This utility follows on from the TAPESTER program presented last issue and is actually an enhanced version of that program.

Whilst the original TAPSTER works fine on the games it was intended for there are one or two problems in using it for other games. For example the program uses page 6 in memory so that any game which uses this area, such as NINJA COMMANDO, will not work with it. Secondly it left BASIC enabled so that games which need to run without BASIC wouldn't work correctly. This enhanced version will switch off BASIC and move itself from page 6 to the to end of memory thus leaving page 6 free for those games that need it.

The instructions for use are the same as the original but, to recap, you should type in the listing and CSAVE it then remove the REM from the line referring to the game you wish to play leaving only the word DATA and the numbers following. Note that for THUNDERFOX you will have to do this to two lines. Now place your tape in the cassette deck, press PLAY and RUN the TAPESTER program. Your game will be loaded, modified and run.

One peculiarity with THUNDERFOX is that the display will indicate when you have lost your first life but, after that, you will have infinite lives and the display will not change.

Finally thank you to Daniel Welch for the original program on which this version is based.

TAPESTER Mk II CHEATS

NINJA COMMANDO	Infinite lives!
THUNDERFOX	Infinite lives!
TRANSMUTER	255 lives!
AIRSTRIKE 2	255 lives!
OLLIES FOLLIES	255 lives!
SCOOTER	255 lives!

```

EH 0 REM *****
QF 1 REM *      THE TAPESTER Mk II      *
SZ 2 REM *
NU 3 REM *      by Mauro Maestromzi      *
TB 4 REM *
EM 5 REM *****
JW 6 REM * NEW ATARI USER -   APRIL 90 *
EO 7 REM *****
NN 8 REM
NO 9 REM
QS 10 GRAPHICS 0:?"PLEASE WAIT ..."
LP 20 RESTORE 80
UR 30 TRAP 40:READ A:POKE 1536+I,A:I=I+1:
    GOTO 30
EW 40 IF A=-1 THEN RESTORE 50:FOR G=1674
    TO 1685:READ A:POKE G,A:NEXT G:POKE 16
    75,PEEK(1706)
UJ 50 DATA 169,6,141,85,3,169,128,141,88,
    3,169,3
SV 60 ? "LOADING..."
WA 70 Z=USR(1536)
DX 80 DATA 169,255,141,1,211,169,0,133,20
    3,169,191,133,204,169,42,133,205,169,6
    ,133,206,162,1,160,0,177,205,145,203
RA 90 DATA 136,208,249,230,204,230,206,20
    2,208,242,76,0,191,169,12,162,16,141,0
    2,3,32,86,228,169,3,141,82,3,169
SH 100 DATA 67,133,203,169,50,133,204,169
    ,203,141,84,3,169,0,141,85,3,169,4,141
    ,90,3,169,128,141,91,3,162,16
WK 110 DATA 32,86,228,169,7,141,82,3,169,
    205,141,84,3,169,0,141,85,3,169,4,141,
    88,3,169,0,141,89,3,162
XO 120 DATA 16,32,86,228,160,3,185,205,0,
    145,207,136,16,248,165,207,24,185,4,14
    1,84,3,165,208,185,0,141,85,3
FZ 130 DATA 169,255,141,88,3,141,89,3,162
    ,16,32,86,228,169,12,162,16,141,82,3,3
    2,86,228
HR 140 REM NINJA COMMANDO DATA 169,139,14
    1,39,5,169,191,141,40,5,76,134,4,169,2
    34,141,247,130,141,248,130,76,144,129
SN 150 REM THUNDERFOX DATA 162,31,189,149
    ,191,149,224,202,16,248,169,230,141,50
    ,7,169,0,141,51,7,76,224,0,32,6,6
ED 160 REM THUNDERFOX (cont.) DATA 32,134
    ,6,169,234,141,20,113,141,21,113,141,2
    2,113,76,64,38
LL 170 REM TRANSMUTER DATA 169,139,141,18
    7,6,169,191,141,188,6,76,6,6,169,255,1
    41,174,80,76,0,80
CQ 180 REM AIRSTRIKE 2 DATA 169,255,141,1
    13,44,76,134,27
QC 190 REM OLLIES FOLLIES DATA 32,6,6,169
    ,255,141,189,45,76,53,44,-1
NV 200 REM SCOOTER DATA 32,6,36,169,255,1
    41,46,116,76,102,115,-1
    
```


FOR SALE

PRINTER: 1029 plus descender font ROM and spare ribbon. Little used, £80. Multi-viewterm with Xmodem software plus Datatari serial interface, £40. CP101 Printer Buffer (7K byte) and interface (serial port to Centronics), £40. Blackthorn printer interface (for daisy chaining serial port and giving Centronics output), £30. Sparta-DOS Construction Set with manuals, £17. Phone Keith on 0245-269030.

XL SYSTEM: 800XL, OS Controller Card, 'Yorkie' 256K memory expansion, 1050 drive with US Doubler + SpartaDOS 3, 850 interface, books, magazines, etc. Also Juki 5510 printer (no head). Tel: 0506-55992 after 7pm.

XL SYSTEM: 800XL, 1010 data recorder, 1050 disk drive, 1020 printer/plotter plus joystick, Centronics interface and broken 1027 printer. Much software including Atari-Writer database, Home Filing Manager, Turbo Basic, Assembler, F15 Strike Eagle, Trivial Pursuits and many more. Also complete set of Atari User and many Monitor and Page 6 magazines as well as Your Atari Computer and Assembly Language Programming books, £250 o.n.o. Tel: 0625-530044.

XL SYSTEM: 800XL, 1050 disk drive, XC12 tape deck, touch tablet, over £200 worth of software (mostly games), all boxed and immaculate, £190. Tel: 0442-53933 (Hemel Hempstead).

MAGAZINES & GAMES: Over 2 years of Atari User magazines, perfect condition, also over 150 games on tape and cartridge including Star Raiders, Star Raiders II, Bruce Lee, Gauntlet, Leaderboard, Star Wars plus many, many more, all originals. Please phone: 0506-847138 after 4pm.

8-BIT BARGAINS: Atari touch tablet, £25; Alphacom 81 Printer + Atari interface + Atari Writer Plus (on disk), £65. Books: De Re Atari, Mapping The Atari, Your Atari Computer, Atari Basic, Atari Sound & Graphics, Basic Reference Manual. Software: Bandits, Way-out 3D, Racing Destruction Set, Beach Head, Fun with Art plus others. 48K Atari 400 in v.g.c., offers? Contact Mauro on 01-445-1696 (Finchley).

XXE SYSTEM: 130XE, 1050 disk drive, 1027 printer, 1010 tape deck, all cables, PSU's etc, plus books and software, £200 o.n.o. Call: 01-636-7218 (London, Marylebone) after 7pm Mon/Fri otherwise Ansafone.

PRINTER: 1029 dot matrix in good condition, complete with leads, £100 o.n.o. Tel: 0792-795369.

L SYSTEM: 800XL, 1050 disk drive, 1010 tape recorder, complete with joystick, lockable disk box with 30 new (3M) disks. Original instruction books, good selection of games (over 170) on disk, cartridge and tape, plus 11 Atari User magazines, £150. Phone: 021-382-4456 after 6pm.

PRINTER: NLQ MicroP. Dot Matrix printer (100/30 cps), still boxed, £80; Printer interface for Atari 8-bit, £20; De Re Atari, £5; Mapping The Atari, £3; Technical User Notes 400/800 series (O.S. and Hardware), £5 each; Inside Atari Dos, £3; Several other books, Antics & Analogs. Contact Russ Ford on 0623-750203 (Nottingham area).

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8-BIT INTERFACE: Will connect any Centronics type printer to any 8-bit Atari 400, 800, XE, XL, etc. Needs no software, fully transparent, complete as new with instructions, cost £50.00. Offers to: M. Rouse, 4 Ouida Road, Canvey Island, Essex SS8 7JP.

XE SYSTEM: Including keyboard, lightgun, joysticks, XC12 data-corder and 1020 printer (needs slight repair), over 100 games and many top titles, basic programs on tape and some books. Have upgraded to ST and need money to pay back loan!! Cost new approx £360 will sell for £160 o.n.o. Call Joey on: 021-457-7706.

XL SYSTEM: 800XL, XC12 recorder, 2 x jet-fighter style joysticks, about 30 games (worth £70+), loads of magazines covering about 3 years, only £100 o.n.o. Call: Winchester (0962)-884567. Buyer collects.

800 48K: With Atari Writer ROM, Basic ROM, 1027 Printer, 1010 cassette, all leads, power packs, etc, £80 or split. 810 Disk Drive, read but no write function, £35. Tel: 0932-344410 (evenings). Weybridge, Surrey.

XE SYSTEM: 65XE, XC12 data recorder, CX40 joystick, over £200 worth of games on cassette and cartridge. Included are many books and magazines. Used over just one year. All games are boxed and in excellent condition. (Buyer must collect). Phone Boris on 0268-747565 after 5pm except Sundays.

XL SYSTEM: 800XL, XC12 data recorder, all leads and original instruction books plus software worth over £850, Atari User magazines. Offers over £200, buyer must collect (Midlothian area). Tel: 031-660-5275 after 6pm.

PRINTER: 1029 dot matrix with dust cover, 7 re-linked ribbons, numerous programs to use with 1029, including 10-Print, Word Processor, Digital Editor + hundreds of icons and 100 sheets of fanfold paper, £100 o.n.o. Buyer collects. Phone: 091-5866795 (Peterlee, Co. Durham).

XL SYSTEM: 800XL, 1050 Disk Drive, 410 cassette, joystick, and trackball. ROMs: Star Raiders, Eastern Front, Assembler Editor, Microsoft Basic and Atari Basic. Disks: Ultima III & IV, F15, Mercenary, Paint, Super 3D plotter, Voicemaster Sampler, BASIC Compiler, Alternate Reality, many adventure, graphic, and flight games. Technical manuals: Mapping The Atari I & II, Computer! books, £200 the lot, may split. Also 1029 Dot Matrix Printer with graphics capability, £80 o.n.o. Call David on: 01-590-7771 evenings only.

BLANK DISKS: Due to sale of my ST I have 60 x 3.5 DS/DD Dysan disks for sale, all brand new and in sealed packs, £20 for 20 or all 60 for £50 (including postage). Call: 0524-54003 for details.

XE SYSTEM: 130XE, XC12 tape deck, 32 cassettes, 15 cartridges, £115 o.n.o. XF551 Disk Drive, disk box, 3 adventure games, Transdisk IV and several other disks, £120 o.n.o. 15 Atari User magazines, £7, or complete package for £220. Phone: 0733-71832. (Buyer collects).

XL SYSTEM: 800XL, 410 recorder, loads of software and magazines including the VERY FIRST edition of Atari User from 1985. All manuals for computer included. Low price for quick sale, only £90. Phone Tahir on: 01-903-0394.

XL SYSTEM: 800XL, 1050 Disk Drive, 1029 Printer, all manuals, joystick, spare ribbons, dust covers, box of paper, games, extra disks and many other extras, all in good condition, £220 o.n.o. Phone: 01-991-0120 (Adrian Laurence).

DISK DRIVE: INDUS GT with 80+ disks, manuals and instructions, dust cover, etc., £150. Phone: 0472-750855.

XE SYSTEM: 130 XE, 1050 disk drive, 1029 printer, 1010 cassette recorder and joystick. Lots of disks/tapes/cartridges including Silent Service, Hitchhiker's Guide To The Galaxy, Trivial Pursuits, business utilities such as Mini Office II. Complete with manuals, leads, full box of printer paper and disk boxes. In very good working order, £310 for quick sale. Contact Dominic after 5pm on 0229-57929.

XL SYSTEM: 800XL, XC12 recorder and 25 games on cassette, joystick, £80. Excellent condition. Tel: 01-574-6249.

XE SYSTEM: 130XE, XC12 cassette recorder, 2 joysticks, £200 worth of software, £100 worth of utilities including Assembler/Editor, back-up cassette system, books worth over £150 including Mapping The Atari, Computer's Vol 2, 2nd & 3rd Book of Atari, magazines including Page 6 20 - present issue, some Monitor & Analog. All in perfect condition. Open to offers. Please write to: Imab Aboudaya, 74 Esker Park, Lucan, Co. Dublin, Ireland

PRINTER: 1029, in good as new condition, includes connector lead, new ribbon, cover and Atari Writer. In original packing, £70. Phone Alan on: 0734-868540 weekends or after 7 pm weekdays

8-BIT BARGAINS: 130XE inc. Controller card, £99.00; 800XL, old and unused for ages, £25.00; 1050 disk drive, double-density, £80.00; 1050 disk drive, double-density + archiver, £95.00; 1020 Printer, £35.00; 1010 cassette, old and unused for ages, £10.00; 1027 Printer, broken, £5.00; 850 Interface, including Atari to PC cable, £60.00; Panasonic KXP1081 Epson compatible printer, £100; plus lots of games and utilities on Disk and ROM and several useful items of hardware. Contact: Roger Bowering, 23 Priory Close, Dartford, Kent DA1 2JF (0322-79509 - Home; 01-356-9970 - Work).

XE SYSTEM: 130XE, 1050 Disk Drive with Hyper drive chip, XC12 recorder, speech synthesiser, over £60 worth of magazines, £120 worth of software, disk holder and blank disks, all worth over £500 and selling for £300. Buyer collects. Phone: Coventry (0203)-441832 after 5pm.

GAMES CONSOLE: Atari 2600 Games Machine complete with all leads and joystick. Centipede game also included. Unwanted prize, so brand new! Bargain at only £30. Phone: 0737-772116 (Redhill).

PRINTER BARGAIN: 1029, boxed and includes manual and Dump 1029 utility. Also includes Atari Writer software, £75. Write to: Peter Graham, 4 Stonedale Close, Pool-in-Wharfedale, Otley LS21 1QT or Tel: 0532-843390.

XL SYSTEM: 800XL, excellent condition, boxed (original) with manuals, etc, ideal replacement/backup, £35 + £2 postage. Also 1050 Disk Drive, immaculate condition, boxed with manuals/disks, £100 + £3 postage. Tel: Shrewsbury 249094.

XL SYSTEM: 800XL (Controller card fitted), 1050 disk drive (US Doubler), both in excellent condition including all packaging, etc. 2 x joysticks, over £900 worth software on disk, Technical Reference Notes and 130XE handbook. Any offers? Ring James on: 0364-73473 after 4pm.

XE SYSTEM: 130XE, XC11, 1050 disk drive, 1029 Printer, 1020 Plotter, loads of software including Turbo Basic, Mini Office II, many games, books including De Re Atari, Technical Reference Notes, Revised Mapping The Atari and many more tapes, disks and books, too many to list! All boxed with manuals, etc, £400 o.v.n.o. Tel: Pete Stray on 0923-673553 after 7pm.

XL SYSTEM: 800XL, 1050 disk drive, 1010 cassette, joystick, loads of software on disk, cassette and ROM (including many S.S.I. and Microprose titles), magazines (including EVERY issue of Atari User), all in perfect working order - most in original boxes, offers around £175 (Buyer collects). Also ICD Printer connection, £15; Mini Office II, £10; Print Shop, £12; 2nd 800XL (faulty but complete with power supply) for spares - any offers? Telephone: M. Newman, (0277)-264626 (daytime), or (0245)-268063 (evenings).

XE SYSTEM: 65XE, XC12 data-corder, XF551 disk drive, Transdisk IV, 70+ top quality games on cassette and disk including Speedrun, Kenny Dalglish, Trivial Pursuits, etc. Disk box and loads of mags worth £450, asking £249 o.n.o. No splits. Ring: Woking (0483)-720533.

XL SYSTEM: 800XL, 1050 disk drive, 1010 recorder, 1027 printer, 822 printer, software, books and manuals. Any offers considered or exchange for ST hardware. Phone: Exeter 57301.

PRINTER: Star LC10 colour printer in excellent condition, complete with all manuals and printer interface (Graphix AT). Still in box, offers above £150 accepted. Tel: 0844-53815. Buyer must collect (Chinnor, Oxon).

XL SYSTEM: 800XL, 1050 disk drive, complete with Quick Shot joystick and paddles, around £100 worth of software, Assembler cartridge, Mapping The Atari Revised, sell for £180 o.n.o. Contact: Steve Holmes, 5 Whitmore Avenue, Grassmoor, Chesterfield, S42 5AE.

XL SYSTEM: 800XL, 1050 disk drive with joystick, leads, P.S.U. and manuals plus DOS, Printshop and blank disks. All boxed and in mint condition, only £120. Telephone: Kevin on 0789-772185.

XL SYSTEM: 2 x 800XL computers, £35 each, 1050 disk drive, £80, 1010 cassette recorder, £10, Philips 7502 composite video green-screen monitor (to suit above), £40, Graphix AT parallel printer interface, £20. Miracle Datatari modem interface/software, £25, Mini Office II, £8. Ring: 0703-736191 after 6.30pm.

XL SYSTEM: 800XL with Controller Card, 1050 disk drive, 1029 printer, cassette deck, touch tablet, £400+ of software including business and utilities, spare disks, etc. All in superb condition, £350 o.v.n.o. Phone John on: 0354-54018.

256K UPGRADE: Yorky 256K memory upgrade for Atari 600XL or 800XL. Brand new unused, £70. Write to: Mr. S. Young, 94 Man-gravel Avenue, Maidstone, Kent ME15 9BE.

VARIOUS: 1029 Printer, £80; Atari Writer, Fleetsystem II, MMG Data Manager, Visicalc, £5 each; Mapping The Atari (Rev.), Atari BASIC Source Book, £8 each; 19 x Page 6 (issue 16 onwards), Atari User (issue 1 onwards), Antic (issues 2-3 & 2-8), offers. Tel: 0747-870409.

XE SYSTEM: 65XE, data-corder, disk drive, 2 joysticks, over £200 worth of software and magazines. Will not split, £250. Tel: 01-804-7020 after 6.30pm.

XL SYSTEM: 800XL with built in Omnimon, 1050 disk drive with US Doubler, power packs and cables + over 30 disks with a wide range of games, £150 o.n.o. Write to: Gary Watters, 13 Logan Way, Livingston, West Lothian EH54 8HF or Tel: 0506-30232.

MORE OVERLEAF

FOR SALE

XE SYSTEM: 130XE, XC12 cassette, 2 joysticks plus over £150 worth of ROM cartridge and cassette software. All boxed as new and in perfect order, £175 o.n.o. Tel: David on 01-622-9386. (N.B. STD code will be 071 after 6th May 1990).

XL SYSTEM: 800XL, 1050 drive, 1010 data recorder, CX40 joystick, all boxed and in excellent condition. Also 1029 Printer, software including: Mini Office II, Basic Tutor Pack, Draconus, Joe Blade, Red Max + many others, Atari User mags, £250 o.n.o. No splits. Tel: Watford 835775 or Uxbridge 55940.

WANTED

DISK DRIVE: 1050 in good working order at £50 or under. Tel. Craig on 0253-691259.

WATSON'S NOTES: Third book in the series, 'Making Basic Work' by D. Kedem and I. Kaliky. Must be in good condition, will pay good price for it. Ring Trystan on 0872-77972 on weekdays in the evening.

PROGRAM HELP: Can anyone help me with the problem I have in running a program on the 65XE for word processing use? Tom E. Steggall, 84, Coventon Road, Aylesbury, Bucks, HP19 3ND.

DISK DRIVE: 1050 for XE system. Must be in working order and at a reasonable price (London Area). Tel: 01-866-6952 or write to: J.R. Burt, 142, Eastote Road, Pinner, Middlesex HA5 1EZ.

MAGAZINES: I want to complete my magazine collection. I'm searching for Page 6 1-18, Atari User 12/85 - 2/86 and Analog Nos. 28, 29, 30, 32 and 36. Reasonable price paid. Make an offer to: Bodo Jurss, Awaudasts, 50, D-2000, Hamburg 36, West Germany.

DISK DRIVE & PRINTER: Must be in good working order, will pay up to £70 for either. Write to: S. Brooks, 10 Oak Close, Summerhill, Wrexham, Clwyd LL11 4HP or Phone: 0978-756464.

DISK DRIVE: 1050 in reasonable condition and under £40. Also any type of disk-based software. Phone R. Harris on 0926-640029 or write to: 15 Green Farm End, Kineton, Warks. CV35 0ID.

KYAN PASCAL: Any information on this needed for the 8-Bit Atari. Where to obtain a copy of the compiler and/or the Kyan System utilities. Any help will be appreciated. Thank you! C. Skipsey, 16 Dunvegan, Vigo, Birtley, Co. Durham DH3 2JH.

DEAD DISK DRIVES!: 1050's in any condition considered, up to £20.00 + postage will be paid. Any other Atari hardware considered. Please telephone Mike on (0734) 833006 or write to: M. Halford, 98 Hunters Hill, Burghfield Common,

PRINTER: 1029 for around £50.00. Telephone: Mr. Martlew on 0704-894893.

MORSE CODE TUTOR: For 800XL/disk. Tel: 0932-344410 (Evenings). Weybridge, Surrey.

DISK DRIVE: 1050 in working order, Atari Writer plus disk (original). West Midlands area. Will also consider other 800XL equipment. Phone: 021-502-1037 early evenings.

TAPE DECK: Desperately required! Any model (400, 1010, XC12, XC11) but must be in good condition with leads/power supply. £15.00 offered. Phone Oliver on Maidstone (0622)-861664 after 6pm any day.

DISK DRIVE: 1050 in good condition, any reasonable price paid. Write to: D. Chadwick, 138 Townsfield Road, Westhoughton, Nr. Bolton BL5 2NT.

PAGE 6 BACK ISSUE: Number 35 wanted. Please contact Andrew Williams, 8 Carfax Close, Lewsey Estate, Luton, Beds LU4 0SA or Tel: Luton 605860 between 6pm-7pm.

TOUCH TABLET: With Atari Artist wanted. Telephone Chris Hudson on: 0436-71961.

PRINT SHOP COMPANION: Wanted preferably with instructions, though not necessary. Please phone Stuart on: 0302-831821.

DISK DRIVE: 1050, must be cheap and in working order. Please write to: Robert Morris, 213 Monmouth Drive, Sutton Coldfield, West Midlands B73 6JS.

BRODERBUND's ARCADE MACHINE: Any condition on original cassette. Also any other game designers (on cassette or ROM), programming books, Frogger (cassette) and cartridges. Please write (with SAE) to: Amjid at 53 Cliffe Street, Keighley, West Yorkshire BD21 2ET.

SCENERY DISKS: Flight Sim II disks for Japan and Western Europe. Phone Richard Martin on: 01-992-9655.

SPARTADOS X: Must be in excellent condition. Good price paid. Will collect or pay postage. Phone: (Dublin) 01-280129 any time.

TAPE RECORDER: XC12 wanted. Reasonable price paid. Write to: Maria Adams, 19 Pattison Street, Delves, Walsall WS5 4PD.

STM 520: Plus 1 Meg external drive, TOS 1.09 or less, approx £180. Phone: 09747-655/212.

EDUCATIONAL SOFTWARE: Wanted urgently for 15-year-old 800XL user (on cassette). Anything considered. Contact Urfan on: Redhill 0737-772116 or write to 108, London Road, Redhill, Surrey RH1 2JJ

PRINTER: Compatible with the 130XE, would like instructions, paper not essential. Will pay p+p. Ring Stuart on Dublin 211040 after 5pm or write to: 12, Carlton Road, Marino, Dublin 3, Ireland.

SPARTADOS X: With R-Time 8, Light pen & mouse (both with software), Class Copy & Issue Disks 35-42 inclusive. All must be in good condition, reasonable price paid. Tel: 01-280129 (Dublin).

TRACKBALL/TOUCH TABLET: Wanted in good working order. Write to: Mr. S. Young, 94 Mangravel Avenue, Maidstone, Kent ME15 9BE.

DISK DRIVE: 8-bit compatible in good working order with all cables and connections. Good price paid. Write to: R. Espino, 35 Chaucer Road, Peterborough, Cambs. PE1 3LN.

MAGAZINES: Issue 25 of Page 6 and January 1986 (Vol.1 No.9) of the OLD Atari User. Will pay reasonable price plus postage or swap for Cut 'n' Paste. If not then any offers for Cut 'n' Paste original on disk? Tel: Richard on 0302-784642.

TRANSDISK IV: Needed with instructions, reasonable price paid. Contact: Harry at 30, Framfield Road, London N5 1UU (Tel: 01-359-1177 Ansaphone).

DISK DRIVE: 1050 in good condition and £30 or less. I am a beginner and if possible would like DOS 2.5 thrown in plus some hints and tips. Tel: 0482-859959.

GAME INSTRUCTIONS: I recently purchased Mediator (English Software) from a friend, but it had no instructions with it. Please help. Write to: Avram Dumitrescu, 190 Colindale, Poleglass, Dunmurry, Belfast, N.Ireland BT17 0AU.

EXCALIBUR LOST: Is anyone able to provide me with a copy of the instructions for playing this old Apex game? Mine have disappeared under water! Phone: 0732-842094 (Evenings).

TANDY ADAPTOR: Memory plus expansion adaptor for Tandy 1000HX computer (Cat.No. 25-1062) and/or Tandy Plus RS-232C Upgrade Board (Cat.No. 25-1031). Call: 01-636-7218 (London, Marylebone) after 7pm Mon/Fri, otherwise Ansafone.

BASIC HANDBOOK: The BASIC Handbook by David A. Lien (Compusoft), also Atari User & Monitor magazine disks, Machine Language 1st & 2nd. Ron James, 8 Lauderdale Road, Ribblesdale, Preston PR2 6RQ. (Tel: 0772-791470).

DATACORDER: XC12 wanted for use with 800XL. Write to: Gerard Griffin, 11 Carrail Lia, Shan-non, Co. Clare, Eire.

DISK DRIVE: 1050 in good working order. Phone Bicester (0869)-346939 after 6.00pm on weekdays.

PENPALS

8-BIT USERS: Hi! My name is David, I am a 23-year-old Atariian. My set-up is as follows: 800XL, 1050 enhanced drive and 1010 tape unit. I am interested in simulations, adventures, shoot 'em ups and flying games. All letters answered. Also, can PAUL RIXON and LUIS EDWARDS please contact me as I have moved from Birstall. Write to: David Fogglin, 21 Fairview Road, Carlinghow, Batley, West Yorkshire WF17 8EH.

65XE USERS: I would like to hear from anybody who owns a 65XE computer and likes playing software or doing own programs from the manuals with the computer. Paul Ellis, 15 Blackthorn Road, Witham, Essex CM8 2XZ. (Tel: 0376-511278).

AUSTRALIAN PENPAL: My name is Glen Ivey and I am an 18-year-old Atari user with 800XL, 1050 disk drive, 1050 Duplicator, 300 BPS Modem, 1010 tape recorder and disks. I am interested in any sport or athletic leisure so if you own a disk drive and speak English, you can write in English from anywhere in the world. Write to: Glen Ivey, 630 Hamilton Road, W. Chermerside 4032, Brisbane, Queensland, AUSTRALIA.

PRINTER HELP/PENPALS: Help!! Can I connect an 8056 thermal printer to my XL? If so, how? Any advice welcome. I would also like to contact 8-Bit tape and disk-based users around the world. I am into Phil Collins, Tolkien, James Herbert and Tom Clancy. Grab your pens or printers and write to: Steven Wilds, c/Payesas 30, 07460 Pollensa, Mallorca, SPAIN. All letters answered!

WANTED!!: Atari ST viruses (Bootsector or link type) for dissection & research. Also required, American contacts into GFA Basic programming and/or role-playing games!! Please write to: Mike Mee, 'Anncott', Hylas Lane, Rhuddlan, Clwyd LL18 5AG. (If any virus killer authors want to swap hints, etc., - get in touch please!!).

8-BIT CONTACTS: I am looking for reliable 8-bit enthusiasts to exchange programming ideas (machine code or BASIC, etc.). I would especially like to hear from any XL/XE owners or a user group in the Mansfield area. All letters will be answered. Please enclose a S.A.E. Write to Steve at 112, Beck Crescent, Mansfield, Notts NG19 6SW.

HELP!!: Anyone out there got Submarine Commander or Powerstar-Pandora Adv. (both on cartridge), plus any strategy/RPG/adventures? Tel: 0743-249094 (Shrewsbury).

ST PENPALS: Contacts wanted, all letters answered. Write to: Sigur-Dur G. Gunnarsson, Eskihild 4, 550 Sau-Darkroki, ICELAND.

XL/XE DISK-BASED USERS: I would like to get in touch with any disk-based Atari users to swap tips, etc. Write now to: D. Moore, 6 The Almonds, Bearsted, Maidstone, Kent ME14 4LG.

8-BIT PENPALS: Wanted anywhere. I have an 800XL, XC12 and some software. I like all types of games. Write to: Urfan Mehmaed, 108, London Road, Redhill, Surrey RH1 2JJ, England.

XL USERS: I have an 800XL and 1050 disk drive. I would like to swap hints, tips and programming ideas with anyone - anywhere. All letters answered. Write to: Colin, 11 South Crescent, East Dene, Rotherham, S65 2XB.

8-BIT USERS: Does anyone know of a word processing program for the 800XL which will drive an EPSON-type printer (connected using an 850 interface) so that I don't have to worry about inserting various control code sequences when I'm typing in text? I have had problems using a Tandy LP7 printer with my Atari. Write to: Rick Yuan, Dept. General Education, South Australian Institute of Technology, North Terrace, Adelaide, SA 5000, AUSTRALIA.

IMPORTANT ANNOUNCEMENT!

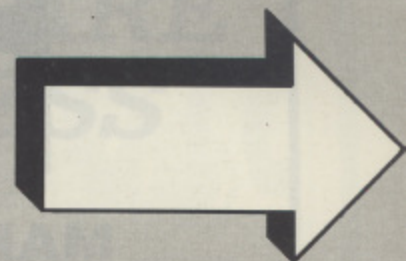
CONTACT is now getting out of hand. In future all notices will be limited to

35 WORDS MAXIMUM
(50 words allowed on PENPALS)

Any notice exceeding this limit WILL NOT APPEAR. CONTACT takes a long time to prepare and we do not have time to edit entries so make sure you stick to the limit otherwise it will go straight in the bin (really!). If you have already sent a notice which you feel might be too long please resubmit it making sure that you identify as a replacement.

CONTACT is FREE of charge and may be used by any genuine Atari enthusiast for contacting other owners. Any notice may be included except those offering software only for sale or exchange or those offering items for sale commercially. The Editor reserves the right to omit any notice received at his discretion. Send your CONTACT notice to CONTACT, PAGE 6, P.O. Box 54, Stafford, ST16 1DR. Please write your notice on a separate sheet of paper, not as part of a letter.

ST FILE

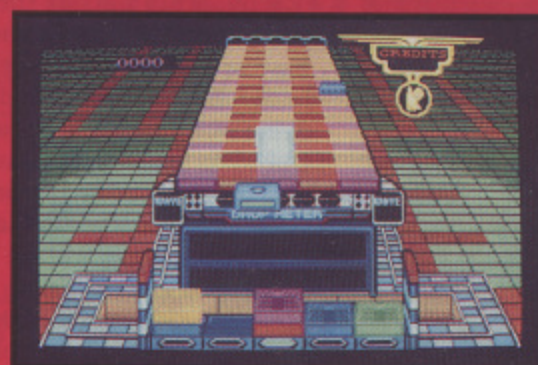


A number of small companies seem to be springing up once again with utilities and games for the ST. PHOENIX SOFTWARE have an educational program called TEACH ME TO READ consisting of eleven programs that take a child through the various stages of learning to read. Price is £9.99 with additional data disks available at £5.99 each. Further details from Phoenix Software, 4, New Forest View, Cowbridge, South Glamorgan, CF7 7ET. SWITCHSOFT have launched a new paint program (haven't had one of those for a long time) called PAINTPOT at £19.95 which works in colour or mono and can save pictures as .IMG files as well as other popular formats. They also produce THE LIMPET SWITCHBOX for £19.95 to swap between mouse and joystick. Details from Switchsoft, Hawthorn Farmhouse, Stowby-Chartley, Staffs, ST18 0LG. B.WARE, already somewhat more established, have SUPERCARD which they claim is a completely fresh approach to home and small business databases, as easy to use as a card index file and priced at £24.95. B.WARE also have some new games, PENGUIN at £19.95 and BILLY BOUNCE and JUMP JACK at just £4.99. More details from B. Bytes Computer Systems, 19, Southfield Road, Hinckley, Leics. Tel. 0455 613377. Over to the big boys and the mega-games, firstly, we have KLAX from Domark at £19.99, a tie-in with a new coin-op and released simultaneously. It will be interesting to see whether this has as much success as other coin-op conversions which can rely on the established popularity of the arcade version. CYBERBALL is another from Domark, American Football played by robots five times the size of human beings! Set in the year 2022 after the last human player has been eliminated from the game. This issue's award for the longest title goes to Domark for ESCAPE FROM THE PLANET OF THE ROBOT MONSTERS, a coin-op conversion featuring comic strip, sci-fi action on a strange planet. Electronic Arts have a fantasy role-playing game called STARFLIGHT set in an enormous galaxy of 270 star systems and 800 planets with a claimed 1.5 billion possible locations! Price is £24.99. Another strategy game from EA is IMPERIUM which is based in the year 2020 and simulates the next 1000 years of human development. On the cheapo side, 16-BLITZ have HUNTER KILLER a WWII submarine combat game plus CONFLICT, a Middle East political simulation and GRIMBLOOD a gothic whodunnit, all at just £4.99. Infogrames continue in their own way with THE TOYETTES, a small race of purple rats that are the heroes of a new world after the apocalypse. You control the rat leader searching through an underground labyrinth! Also from Infogrames, FULL METAL PLANETE, a wargame played on the familiar hex system. More cheapies from SMASH 16 include the ex-Infogrames titles, MACADAM BUMPER, PROHIBITION and CRASH GARRETT as well as ACTION SERVICE and, wait for it, CAPTAIN BLOOD at an incredible £4.99! Back to Domark again for CASTLE MASTER set in 16th Century England where you rescue a captive Prince or Princess (true equality!) from a many floored and roomed tower. This one is produced in association with Incentive and features their famed 'Freescape' 3-D solid graphics. U.S. GOLD, through its many labels, have several interesting ones including CHAMPIONS OF KRYNN part of the Dragonlance series, BLACK TIGER, an arcade follow-up to STRIDER and PINBALL MAGIC from Loricel. To finish up, news of a new French label launched by Virgin called CRYO which sends out press releases in typical French fashion - nothing to do with any software, just a fanciful story about CRYO - 'asleep inside a self-support cryogenic container, she is passing through our time on her way to another age. What does her destiny hold in store? Can she safely be woken from her timeless sleep? What is the mysterious fascination she exercises on all those who approach her?' Remember this is not a game, this is just the label! Will the software be as good?



ESCAPE FROM THE PLANET OF THE ROBOT MONSTERS
from Domark - how do they expect magazines to fit that into their little review boxes!

CYBERBALL
- massive Domark robots play American Football



KLAX - a simultaneous coin-op and computer development

STARFLIGHT
- a massive interplanetary simulation from Electronic Arts



HILLSFAR!

Another eagerly awaited game from the powerful TSR/SSI team. Lots of excellent graphics, on-screen maps, five arcade sequences, joystick driven (although I prefer the cursor keys in some of the arcade sequences), choice of character class, multiple sub-quests - lots of fun, but not a lot of depth.

You choose to be a fighter, thief, magic-user or cleric (or combination - if you are of a suitable race), then set off from your campsite to seek adventures in the city of Hillsfar. You only get to play one character at a time, but if you get stuck you can save that character and start a new one - each class has three quests to complete, so you can have four different games running at once.

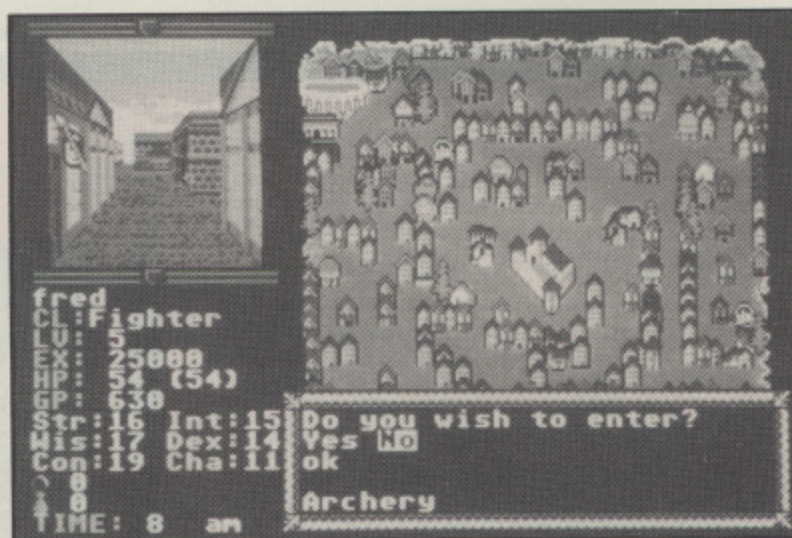
A full screen map of the countryside allows you to select your route to Hillsfar - there is only one, but once you get to Hillsfar you can choose other routes to exotic locations such as the Wizard's Labyrinth and the Dead Dragon. The first arcade sequence is the ride to Hillsfar - you must control the speed of your horse and leap all the obstacles along the way - you may be able to buy a better horse at the Trading Post later if you don't like this one!

First you must enter Hillsfar and locate your guild in order to get your first quest. Hillsfar is shown as an on-screen map, with nearly all places of interest already marked in the accompanying booklet. Once you have found your guild, the

Guild Master will set you a little task. Each quest requires you to visit between 6 and 16 locations to gather information and work out where to go next. You will have to visit the various pubs and shops (all menu driven) and choose the right actions, or prove yourself in the arena (quarter-staff fighting - arcade-style - with a variety of opponents - listen in the pubs for hints on how to beat each one!) or the archery range (another arcade game with various moving targets - how come when you get a perfect score you still don't win? - have a long chat with a store-keeper!), or break into various places when they are closed (N.B. the interior of a location is COMPLETELY different depending on whether it is during opening hours or not), or search the various locations outside the city.

Each journey outside the city involves you in horse-riding - some of the routes have some nasty obstacles (helps if you have found a blasting rod!), plus low-flying birds and snipers' arrows to avoid! Once you reach the Ruins, Hermit's Place, Shipwreck or whatever you enter another arcade game. All these locations are similar in style, as are the interiors of all the city locations you break into. You get an overhead view of a Gauntlet-style game, with a limited time to rush around, opening chests to find your next clue or a little gold, avoiding guards and locating the exit.

The fifth arcade sequence is Lock-Picking - necessary on certain buildings and most chests. You are presented with a lock with 3 to 8 tumblers, and must pick the right end of the right lockpick for each tumbler, often in a very short time! If you are a thief you get a set of 10 double-ended picks, otherwise you have to hire an NPC in the city to help you. Even without picks you can still get in using Knock Rings, Chimes of Opening, or just Brute Strength - but be careful you don't set off



a trap!

You don't need to draw maps or make many notes, just the hints you pick up, plus details of how the enemy fight in the arena. You don't even need to remember what you are doing in your current quest - the computer will remind you if you press R! (S, P, Esc, E, F and Z all do useful things in various circumstances - make sure you check the manual!).

The only real criticisms are that there is no WAIT command, and that occasionally you have to do things (e.g. CHARM BAR-MAID) which last time you tried them sent you to the arena, but are now the right thing to do!

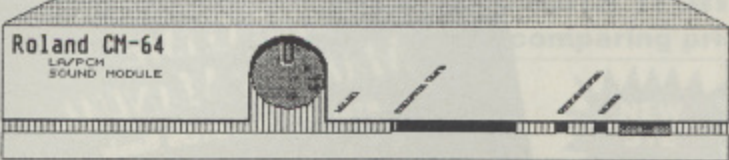
There is lots of local colour - sit in the pub and you may be told "You look into the ale of the person next to you and notice a dead rodent in the bottom of the glass!" - and it is easy and fun to play. If you want something sophisticated save up your pennies for Ultima V, but as an introduction to fun computerised D&D you'll find it hard to beat!

- **GAMEPLAY** - Well implemented Arcade-style D&D
- **GRAPHICS** - Excellent
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Title: **HILLSFAR**
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 Reviewer: **John Sweeney**

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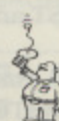
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STOS GAMES MAKERS MANUAL

Despite the claim's of many reviewers, and indeed Mandarin themselves the main criticism of STOS is that the package does not teach the basics of games programming. This is perhaps the only point in which STOS loses out to dedicated games writers like The Shoot-Em-Up Construction Kit and STAC. Not any more though because Stephen Hill (author of the original STOS manual) has written a book entitled The Game Maker's Manual - Atari ST and STOS Basic.

The book is a portly 282 pages, containing eleven chapters suitable for STOS users from beginners to Assembly Language programmers. The structure of the book is laid out in such a way that total beginners will enjoy reading from the very first page and people who already have some knowledge of software creation can start from Chapter seven where some of the more advanced techniques are discussed.

The first chapter introduces new programmers to established programming techniques such as pseudo-code, modular construction and optimization by dissecting the popular PD Asteroids variant - Megaroids. Stephen uses possible criticisms of Megaroids to construct a game called 'Pathfinder' which could easily be implemented in STOS. One of the more interesting points in this chapter is the fact that details about memory usage in STOS are revealed, so no longer do you have to guess how much room a sprite or an array is going to consume, you can work it out!

At the start of Chapter Two things get really interesting, from here specific game types are examined in depth, Chapter Two is all about Space invaders, Chapter Three covers

Breakout, Chapter Four is simulations, Chapter Five features role playing games and Chapter Six is all about adventures. I don't want to ruin the book for all you prospective readers so I will not reveal much about the content in these parts, but each Chapter contains a brief history of the game type under discussion, and Chapters Two and Three contain detailed breakdowns of Zoltar and Orbit, so you can all see how brilliant Francois Lionet's programming techniques are!

Chapter Seven starts to deal with more advanced topics by offering a thirty page introduction to drawing 3D wire frame graphics. Some of the things contained in this chapter are very advanced and I must admit to getting a bit lost amongst some of the listings, but then as Stephen rightly says- "Thankfully you don't really need to understand any of these equations in order to use them in your own programs."

Chapter Eight takes a look at all of the different ways that animation can be achieved using STOS, colour cycling, screen flipping etc. Although the other chapters all contain sample listings this is the first in which there are lots of examples which can be entered in under a minute each, so you can have some real fun without having to work too hard! For those of you with the STOS Maestro cartridge Chapter Nine contains some interesting new things for you to do with your sampler. If you have ever wanted to produce alien speech (Captain Blood style) then check out this book.

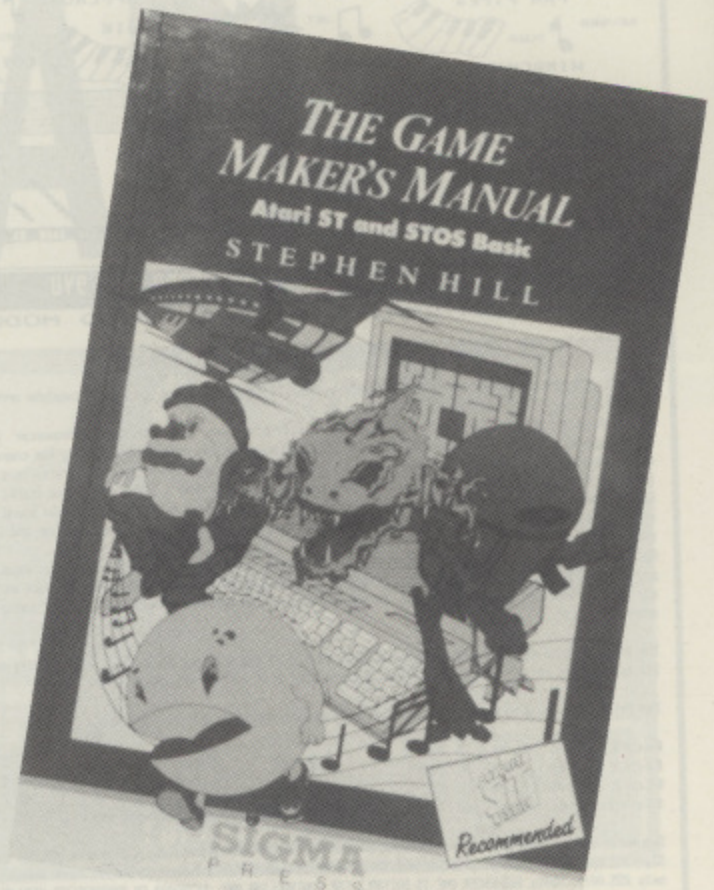
The penultimate chapter is all about scrolling and shows how to use those

incredibly awkward 'Scroll' commands with much more finesse than you ever thought possible. Also in this chapter is a breakdown (and a bit of a re-write) of the STOS map editor, included are routines to speed up the plotting of the maps to near instantaneous speeds and code to demonstrate scrolling maps.

The final chapter (what else could be squeezed into this book?) is for really advanced users who wish to add their own commands to STOS. It contains essential information on the construction of extensions for both the STOS interpreter and compiler. Also revealed here are facts about 'undocumented features' in STOS (bugs to you and me!) that could restrict the potential extension writer.

This book is really fabulous, Stephen's writing style throughout is interesting and witty and, perhaps more importantly, he does not ramble on about one thing for too long. Although not a replacement for the STOS manual The Game Maker's Manual supplements it superbly, it's just a shame that Mandarin did not have the foresight to include in the original manual information similar to that contained in this book.

My only real criticism is that the book is not ring bound, this makes typing in the listings a real one-handed headache. If anybody at Sigma Press is reading this perhaps they could rectify this fault for the second edition?



**THE GAME MAKER'S MANUAL
ATARI ST AND STOS BASIC**
by Stephen Hill
Published by Sigma Press
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ISBN 1-85058-158-4

**Reviewed by
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PD **Paul Rixon's** WORLD

A WANDER THROUGH DEMOLAND

Hello, and welcome to a new regular feature of the magazine dedicated to Public Domain software on the ST. Each issue I intend to focus on a particular topic and present a round-up and, where applicable, detailed reviews of the related programs available from the extensive PAGE 6 library (and maybe elsewhere!). There are currently almost 300 disks in the library with subjects as far ranging as programming languages, arcade games, art programs and desk accessories and I have already identified enough categories to take us up to issue 75!! I'd be interested to hear, however, what you would like to read in these pages. If you want to suggest a topic for discussion, recommend a particular program or have any comments at all relating to the Public Domain then please do drop me a line (via the PAGE 6 address). Don't forget to enclose a stamp if you would like a personal reply and please note that I CAN'T supply you with the software - see the end of this article for details of how you can obtain the disks from the PAGE 6 Accessory Shop.

START THE BALL ROLLING

To launch the proverbial ball on its meandering voyage I've been sifting through the library disks and sorting out those programs belonging to not only the largest and most exciting category of uncopyrighted software, but that which

must surely convince anyone who hasn't yet experienced the Public Domain to think again and join in the fun. I'm referring, of course, to demonstrations, which have evolved from spectacular beginnings to an almost unbelievable height of quality and yet still are getting better! There are literally hundreds of demos in the Public Domain and they fall roughly into three main areas. Commercial software and sampled music demos will be covered in future articles, so that leaves the huge range of specialised graphics and sound demos, specifically designed to impress and amaze onlookers with the immense power of the ST.



Steelyboink - Incredible bouncing balls

MORE BALLS!

Despite the increasingly sophisticated demos arriving regularly from the Continent, there are many programs born in the early days of the ST that remain as satisfying to watch now as they were all those years ago. **COLOUR DEMOS**, one of the first disks added to the library, contains a wide range of early work, including the famous 'Boink' demo - a bouncing, spinning, chequered ball casting a shadow on a grid in the background. If you have a mono monitor, check out **SILVER BALL** for a great ball demo guaranteed to astound your friends (or at least, those who don't own an ST!). If you enjoy this sort of thing, **STEELY-BOINK** is quite impressive with half a dozen bubbles swirling around in a box and reflecting the surrounding messages. **BALL & BIRD DEMOS** features a glass marble bouncing on a mirrored surface

with superb shading, and also includes a magnificent animated demo of a bird flying past a coastal landscape. You won't believe how realistic it is! If your head is spinning after all this, try coming down to earth with **THE SNOWMAN** is a stunning and enchanting sequence telling the delightful story with some brilliant digitised pictures and 'Walking In The Air' music captured using Microdeal's ST Replay system. In my opinion, it's one of the most professional looking demos there is.

MINE'S BETTER THAN YOURS!

Several groups around the world are continuously striving to out-do each other and produce the 'ultimate' ST demo. Probably most revered of all the recent demos is **THE UNION DEMO** which is a remarkable achievement by the best of Europe's talented hackers. It won't run on a 520STE but will, with a few glitches, run on a 1040STE and on every other ST made so far. It comprises ten fabulous demos with crazy scrolls, excellent digitised music and even a copy routine enabling you to duplicate the disk - with non-stop music throughout! Then there's the amazing **CAREBEARS CUDDLY DEMO**, which improves on many of the ideas used in **THE UNION DEMO** with fancy scrolls, great music and the best graphics around. Also from the Carebears is **THE WHATTAECK DEMO**, a masterpiece of sight and sound that will surely take some beating.

AND THE MUSIC IS REALLY GREAT!

If you enjoy listening to tunes from the top ST games there are over *four and a half hours* worth in the amazing **B.I.G. SCROLLER** plus, of course, some really stunning psychedelic graphics, scrollers and more digitised music. Another good one is **THE LOST BOYS DEF DEMO** from this country which has six different

demos combined into one, including some great interactive sprite manipulation. All these demos are becoming ever more complex and I would love to dedicate more space to these incredible feats of software engineering in a future issue.

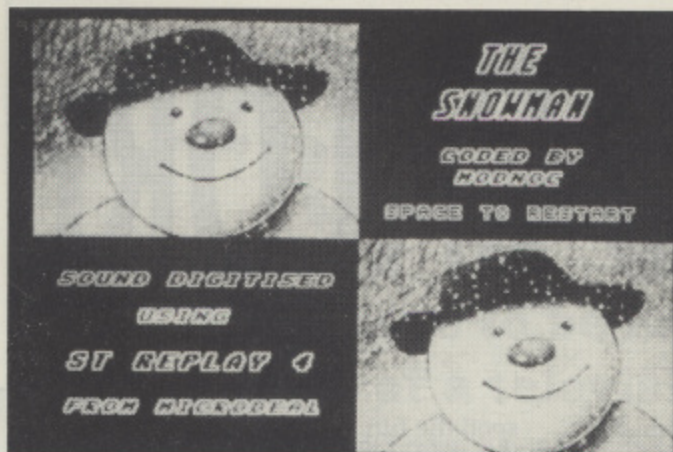
A FEW SURPRISES

Things aren't always what they seem. Take the **OMEGA DEMO**, for example. This was described as a 'pretty standard graphics demo' and at first, this did seem a reasonable assessment. However, the Swedish creators had incorporated an unexpected bonus - which was so well hidden that it slipped past many people unnoticed! Hit the reset button during the 'melting chrome' graphics display and some peculiar things begin to occur ... a strange picture ... bombs ... but wait! They move! ... and finally, the main screen for another of those great scrolling message demos. There's musical accompaniment from sixtyfour tunes and the opportunity to select from seven different demos (using the cursor keys with Help and Undo). One of these features what must be one of the tallest scrollers ever. There's even a two-player game which is very similar to Atari's Nucleus on the 8-bit. Some 'standard' demo!

There are quite possibly many more surprises lurking undiscovered amongst the library disks and it's always a good idea to try pressing every key before deciding you've seen and heard it all. Reset traps are quite common (try the **TEX DEMOS** and **THE ULTIMATE DEMO** for example) but also check the function keys and cursor keys - in fact any key you can think of! You may well stumble on the unexpected and, if so, why not write in and share your knowledge with everyone!

E FOR EXCEPT?

If you've recently bought a new ST the chances are that you opened up the box to find a mysterious 'E' where the 'FM' used to be. Atari's enhanced machines boast 4096 colours, stereo sound, plug-in memory boards and a built-in blitter - not to mention the latest revision of TOS. Great stuff in theory, but unfortunately TOS 1.6 introduces something of a compatibility nightmare! Many commercial games have been giving problems and some Public Domain software has been similarly affected. A few programs will not work at all, and others - such as **THE ULTIMATE DEMO** - will run but do not operate correctly. The affected disks are marked up on the latest Accessory Shop leaflets so if you have an STE check carefully before making your selection. Also, if you haven't yet picked up Atari's patch for the medium resolution bug then bear in mind that some disks may not boot up in the way they were intended.



THE SNOWMAN
the perfect combination of sound and graphics - beautiful pictures and an excellent sampled tune make this one of the most interesting demos around

Enough of the depressing news, now for the good stuff! Joining the library this issue is **THE STE DEMO** which will definitely have no problems running on the STE! The machine is equipped with an 8-bit pulse code modulation stereo sound system and this first demo, I'm sure one of many, combines graphics with an excellent example of its use. Of course, you'll need to hook up some twin speakers to achieve the desired effect.

If you have a Philips CM8833 monitor then a suitable stereo SCART lead (not the standard type supplied by many dealers) will do the trick nicely. Otherwise, you'll have to run some phono leads from the STE's output ports to your hi-fi. Then, pump up the volume, and listen to possibly the best music yet emanating from an Atari micro!

A REAL STUNNER!

I said earlier that I wouldn't mention any commercial games demos but I have just loaded one of the new disks in the library and I simply can't believe how good it is! **SPACE ACE** is an advertisement for a game written by Don Bluth and published by Readysoft Inc. of Canada. It has already caused quite a stir on the Amiga (the what?) and is evidently now lined up for release on the ST. I have to say that it contains the most incredible animated cartoon sequence that I have ever seen on a personal computer! Not only are the



SPACE ACE - the most impressive demo of all?

graphics almost indistinguishable from a real televised cartoon, they're accompanied by a great digitised sound track describing the hero Space Ace, "defender of justice, truth and man of Earth" and his valiant quest to rid the Earth of the Evil Commander Wart. I understand the retail price for this game may be something like £45 but, if the demo is a realistic representation then it must be worth every penny. Why not try the **SPACE ACE** demo and see for yourself!

WHAT A CHOICE!

That's it, I'm out of space! There are lots of great demos that I haven't had room to mention so they will have to wait for a future column. I hope you have enjoyed reading this article as much as I have enjoyed exploring the **PAGE 6** library and, if so, I will be back next issue to discuss a completely different subject (I haven't decided which one yet!). Don't forget to write with your suggestions! ●

HOW TO GET THEM

All of the disks referred to in this article are available from the **PAGE 6 PD** library. Each has a unique reference number which you should use when ordering or enquiring about the software. Please contact **PAGE 6** if you don't have a copy of their Accessory Shop leaflets and check the system requirements for each disk. The programs referred to in this article are:

ST2 - COLOUR DEMOS
ST19 - BALL & BIRD DEMOS
ST47 - TEX DEMOS
ST90 - B.I.G. SCROLLER
ST162 - THE UNION DEMO
ST175 - THE LOST BOYS DEF DEMO
ST195 - THE WHATTAHECK DEMO
ST204 - THE CAREBEARS CUDDLY DEMO

ST249 - ATARI STE DEMO
ST251 - THE ULTIMATE DEMO
ST252 - SPACE ACE
STS7 - STEELYBOINK
STS15 - SILVER BALL
STS27 - THE SNOWMAN
STS37 - OMEGA DEMO.

Prices are £2.95 each disk or £2.50 each for 10 or more. Write to **PAGE 6**, P.O. BOX 54, Stafford, ST16 1DR. Telephone 0785 213928 or FAX 0785 54355 with credit card orders.

GAMES GALORE

Over the past few months many software companies have released compilations, hoping to squeeze more money out of the public by flogging off what would previously have been considered 'dead' titles. Games Galore is different though, it contains four brand new games, but can it survive in the tough world of the compilation?

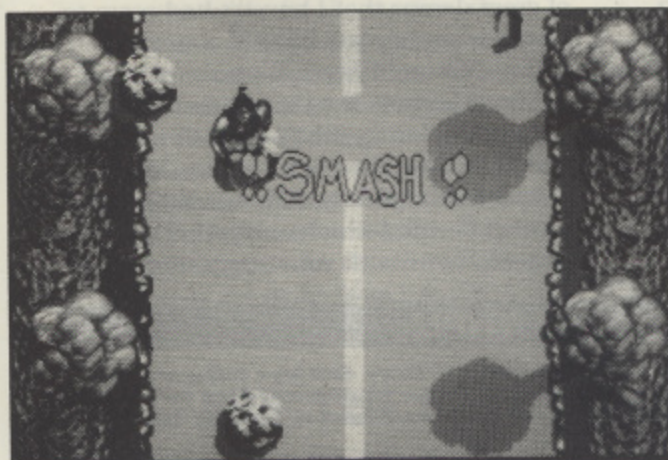
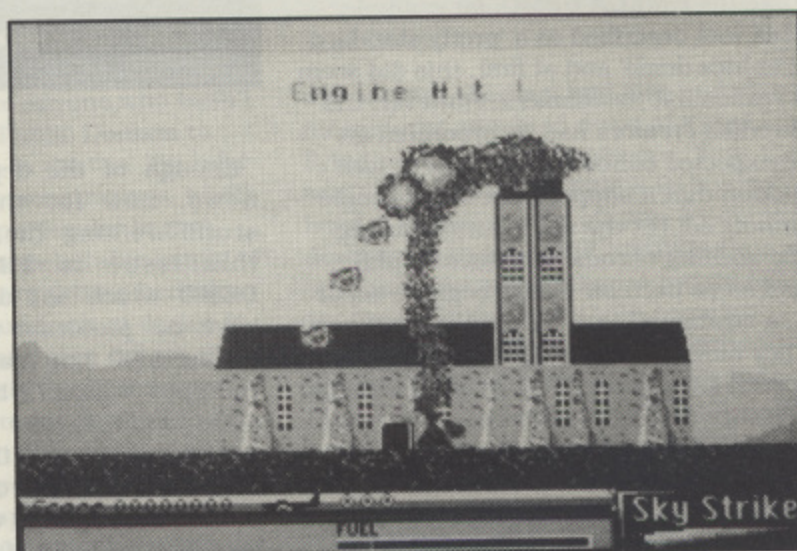
The pack contains two single sided disks, each one holding two games. The first game of the pack is **SKYSTRIKE**, a horizontal/vertical shoot 'em up set in WWII. This game is an eight level version of Skystrike Plus which was reviewed in issue 41's STOS column, and if you have read that then you will know how infuriatingly addictive this game is. The concept is so simple all you have to do is pilot an old spitfire around a flip screen landscape and complete each mission that you are assigned to, these range from shooting down enemy aircraft and going on bombing runs to doing low level swoops under a bridge. Your aircraft is viewed from the side and is extremely manoeuvrable with it's nine different throttle settings and strange (but useful) control method. If you are shot down by the enemy you have no alternative but to bail out, and it can be quite interesting trying this at different heights just to see how low you can go without going SPLAT! The game includes extra weapons and lots of other little features that I'm not going to tell you about because it will

spoil the fun.

On that same disk is **YOMO** which comes from the same stable as Skystrike and is described as an arcade wargame. Set in a future controlled by tyrannical robot brains Yomo is similar in many ways to Skystrike but adds a strategic element with a very intelligent computer opponent. The idea behind the game is to destroy the TBR (Tyrannical Brain Robots) bases on Earth, the Moon and Mars by dropping marker flags behind enemy lines and calling in bombers, tanks and demolition squads, whilst trying to complete a sub-mission that is given to you at the beginning of the level. This could range from collecting lost nuclear bombs (and these robots are supposed to be intelligent!) to rescuing hostages. You have a choice of different ships, a grub which is a slow bombing/paratroop assault vehicle and also doubles as a Star Wars type walker at the press of a button, and there is the silverfish which is incredibly fast, can carry eight heat seeking missiles but is almost impossible to land in a confined space.

Like Skystrike, Yomo allows extra weapons to be collected such as a nuclear bomb, extra missiles, turbo speed and greater firepower. Each one brings a new element of strategy into the game as the choice between weapons can sometimes be a curse during hectic attack/bombing runs. This game takes a while to get into but once you do you are going to love Yomo, it's like a cross between Defender, Choplifter and Capture The Flag.

On the second disk is a vertical scrolling game called **SKATE-TRIBE**, this little gem is centred around getting a little (well quite large actually) Skateboarder through nine levels to reach an outpost with which communication has been lost. The screen scrolls from bottom to top and is quite smooth, all of the graphics are very large and give the game a very impressive feel but the overwhelming feature of this



game (apart from it's playability) is the high quality of the music it contains, twenty five tunes each of which fits perfectly with it's associated level from racy hard hitting beats during the game to charming ditty's when bonus points are awarded. As you work your way through the levels enhancements are added to your skateboard which give it turbo speed, high-tensile base plates and other such unusual accessories. This is a really nice game and includes the best graphics on this compilation but is a bit hard for this humble reviewer. I'm going to have to practice at this one!

The last game on Games Galore is called **Mouthtrap** and is so simple even my mum and eight year old cousin wanted to play it. The documentation gives the usual atrociously silly story about a giant mouth being let loose in the largest food store in the land but don't let this fool you into thinking that Mouthtrap is a Pacman clone. You control a mouth that has to go around munching up fruit (not in a maze!!) whilst avoiding the germs that patrol each screen, the backdrop changes for every level as do the fruit, so you find yourself munching things as diverse as cherries and milk cartons. Now this may sound like Pacman to you but it's not. The mouth you control moves with momentum so when you release the joystick it does not stop straight away and, as if that was not enough, the mouth also moves slightly from side to side in a very erratic manner so gaining full control over it would be worth a Nobel prize for sheer brilliance. There are loads of other features such as the mandatory bonuses like a big POW symbol which makes your mouth grow and allows you to eat the germs, and an apple

Title: **GAMES GALORE**
 Publisher: **Mandarin Software**
 Price: **£19.95**
 Reviewer: **Peter Hickman**

that appears occasionally which is used to build up an extra life. This game is one the whole family will enjoy (mine did!) without becoming bored or too frustrated. Richard Vanner of Mandarin Software has managed to get a massive 2.7 million point high score, see if you can beat that (I couldn't).

If you have not already guessed I was interested in reviewing this compilation because all of the games were written in STOS, but believe me if they did not advertise that fact you would be none the wiser. Each game within this compilation contains that certain something that seems to be missing from 99% of sixteen bit games at the moment, I cannot quite put my finger on what it is perhaps it's playability, or perhaps it's the fact that all of these games are actually fun to play and don't demand too much from your trigger finger (great for everybody suffering from joystickitis, or who, like me, suffer from 'fire button finger' after a five hour Xenon II session).

As a bonus Mandarin have included a new STOS extension with these games called STOS Squasher, this allows users to compact (and decompact) any type of memory bank from within STOS thus saving disk space on any programs you may write, it takes a while to compact things but decompaction is almost instantaneous. As if that was not enough on side two of the disks (accessible by double sided drives only) is the source code for the games so you can see how they work, you can also change the graphics to suit your own tastes, or use the existing graphics and music from within your own programs.

To sum up I would recommend you buy this compilation even if you do not own STOS, the games on it are really fun to play and offer good value for money when you consider that it works out to about five pounds for each program.

- **SOUND** - all the games have some really nice music, the best being present on Skatetribes. Sound effects are ok, with some of the games using pretty clear samples.
- **GRAPHICS** - the graphics on Skystrike are a bit flickery but well drawn. All of the other games contain the standard of colourful graphics that are expected of all present day software releases.
- **GAMEPLAY** - the most outstanding point of this compilation is that you (and the rest of your family) will still be playing the games long into 1990.
- **VERDICT** - if Mandarin keeps releasing products as good as this they will never get a bad review.

SPORTING TRIANGLES

You don't have to be Emlyn Hughes to have a go at a television quiz game
John Barnsley tests his knowledge

This is the computer game based upon Central Television's quiz game of the same name. As with the television programme, three players compete with each other (or the computer) in seven rounds of sport-orientated questions, each contestant specialising in one particular sport - and the program kits out the player in the appropriate gear!

You initially select one of twelve different sporting categories as your specialist subject and you are given the option to set any length of time limit for the answers. There are seven different rounds and these are in line with the television show. The first two rounds are standard question rounds, with each player receiving a single question in any of the three players specialist subjects (or general sporting knowledge).

Two points are awarded for a correct answer - but the strange thing about this game is that you are not given the option to type in the answer but find the answer displayed on the screen and are asked if it is right or wrong! This obviously makes it very easy to cheat and win every time - so what's the point? Well it is only a game and good fun nonetheless!

The next round is Hit For Six where the player has six attempts to answer according to the gradually helpful clues. The quicker you answer, the more points you earn. More standard questions then the Jigsaw Picture round where a graphic is gradually formed on the screen. The final round is a little fairer where you hit your allocated 'buzzer' key to have the opportunity of answering the question. These 'buzzer' keys are only active when the question is completely displayed on the screen. Again, it seems rather silly when the answer is displayed and you are asked if you were right now what kid (or Dad!) in his right mind is gonna press 'NO'?!?

Once you have completed the questions, fairly or otherwise, the end of the game is reached and the winner is duly congratulated. You then have the option to play again - although you must choose different sports than those selected for the previous game.

Sporting Triangles is, to be fair, reasonably fun to play yet I feel there is little going for it in terms of excitement. Although the program is reputed to contain 2500 questions, the same question is repeated all too often and they soon become well known to all players. It's just too easy to cheat but, if you're into sports or any other trivia, then I don't think you'll be too disappointed.

I must mention the monotonous copy-protection 'device' - a sheet of 780 darkly coloured squares which relate to a colour request from the program upon first loading of the game. The need for this kind of software security is appreciated but do those colours really need to be so hard to define? In artificial light - when most games are played - it can be extremely difficult to tell 'dark blue' from 'black'.

Overall, an enjoyable few hours of sporting fun (and cheating!), but I don't expect that I'll be playing it again for some time, unless more question modules become available (how about it, CDS?).

- **SIGHT & SOUND** - Nothing special but adequate for this type of game
- **GAMEPLAY** - More fun with 2 or 3 'human' players than solo against two computer contestants
- **VERDICT** - Initial curiosity soon disappears once all the answers are known. An option to create home-made questions would be useful

SPORTING TRIANGLES - CDS Software - £19.99

MAKING MUSIC WITH YOUR ATARI

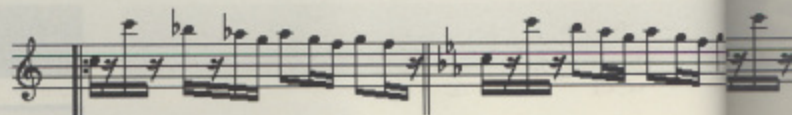
*John S Davison's
regular guide to
all the ways
of making music
on your favourite
computer*

SEQUENCING

In the last issue I discussed what you can expect when moving upmarket from a basic 'home keyboard' to a more sophisticated synthesiser. This time I'd like to do the same with software, in particular looking at the sequencer. To save space I'll assume you all read my 'MIDIot's Guide' series in Issues 37 to 40 last year, so you already know the basic concepts and jargon of MIDI sequencers. If you missed the series and want to know more, back issues are still available so call Page 6 for details.

The sequencer is the heart of any MIDI based system, as it's this which enables you to record and playback music with your MIDI equipped synthesiser. Most people start with something fairly simple and inexpensive, such as Music Construction Set, or Music Studio. They may be simple, but they're capable of good results and are ideal for beginners. They're both 'step-time' sequencers, which means you enter musical notes into them one at a time, a rather laborious operation. Virtually all other MIDI based sequencers operate in 'real-time', i.e. you actually play the music in from the synthesiser's keyboard, although step-time input is often included as an option.

After using several different real-time sequencers I finally found happiness with Twelve by Steinberg. This is a cut down version of the legendary Steinberg Pro-24, a



superb 24 track sequencer now in use by professional musicians the world over. Twelve is often known by the nickname of 'Pro-12', as it's very similar in looks, facilities, and operation to its big brother. At £129 it's not exactly low priced, but you can get it much cheaper by shopping around.

So, what makes Twelve so good? Well, I find it very easy to use; it seems to have virtually all the facilities I need; and everything works exactly as expected - give or take the odd bug. Naturally, having used it for a while I can now think of things that could usefully be added, but then I could always upgrade to Pro-24 (but don't tell my wife!).

MAKING TRACKS

As you might guess Twelve has twelve tracks, allowing you to record up to twelve independent polyphonic musical parts, which can then be played back simultaneously. Each track can be assigned to a different MIDI channel, permitting each to produce a completely different sound.

A track may be built up from sections (called patterns) of any chosen length, and each pattern recorded independently. When recording you can loop the pattern, allowing the same part of the song to be recorded repeatedly without stopping until you've played a version you're happy with. You can record at any speed too, permitting difficult bits to be recorded slowly then be speeded up to the correct tempo on playback - great if your keyboard skills aren't too good! If your rhythmic timing's a bit out there's a quantise facility to pull notes back onto the beat (UNDOable if you don't like the effect). Unwanted MIDI data (e.g. pitchbend, aftertouch, etc.) may be filtered from the incoming MIDI datastream as you play, to reduce data storage requirements.

After recording, each pattern can be modified in several ways. This includes applying MIDI velocity changes to alter the volume and timbre (overall tone) of the sound; shifting the timing of playback forward or backward to create special effects; transposing note pitch up or down; and setting the voice the synthesiser uses to play the pattern. Patterns may be saved/loaded to/from disk, copied within a track or from one track to another, and strung together in any sequence required to make up a complete song. Files produced by Twelve can also be read by Pro-24, so if you upgrade you can still use your old files. Twelve will also read the first twelve tracks from a Pro-24 song file.

When recording a new track you can simultaneously play back previously recorded tracks, so hearing the new recording 'in context'. You can also turn tracks on and off independently, and quickly 'solo' any track to hear it in isolation. As you record or play back tracks, twelve 'recording level meters' hypnotically dance around to indicate the passage of MIDI data to/from each track.

My favourite feature of Twelve is its graphical score editor, which shows you what you've played - in normal music notation! What's more, you can then edit the music in this form, permitting the removal of wrong notes, addition of new ones, lengthening or shortening of notes, and changing a note's dynamics by changing its MIDI velocity. In fact, you can start with a blank pattern and enter every note singly if you wish - just like in Music Studio or Music Construction Set, only



with far more control.

You can set an overall tempo and time signature for your song, but for more complex pieces you can change either within a song using a 'master track'. Another facility lets you synchronise the sequencer with a separate automatic drum machine or even a multitrack tape recorder via a sync track on tape.

So what's missing? Well, it only has twelve tracks, and annoyingly you can't merge several tracks into one - important when you have so few available. There's no drum pattern grid editor, so drum patterns have to be recorded live or tediously entered via the score editor. You can't print out the resultant musical score either, as Steinberg expect you to buy their companion Masterscore product to do this. Overall though, I find Twelve a delight to use. It runs happily on my 520STM, and works perfectly with my Yamaha PSS-680 and YS-200 keyboards. I can highly recommend it.

EXPLORING THE PSS

Have you ever listened to those fantastic automatic accompaniments on home keyboards like the Yamaha PSS series and wondered how on earth they're done? For those who haven't heard them, the PSS-480 and 680 have a set of incredible automatic accompaniments in 100 different styles. Even a simple one-finger melody can sound really professional when played along with one of these! The accompaniment consists of bassline, drum rhythms, chord backing, and orchestral embellishments, each using different instrumental sounds. Each part may be turned on and off independently of the others, allowing you to use them in any combination. As well as playing over the PSS's speakers, each part is also transmitted on its own MIDI channel, allowing it to be played by other MIDI instruments in your setup.

But just a moment - if they're transmitted over MIDI you should be able to record them into a real-time sequencer! If you connect the PSS to the ST with MIDI cables in the usual way, put your sequencer into record mode, and switch on the PSS's auto accompaniment, you'll find that you can record them. You may then use the sequencer's editing facilities to examine what the PSS has been playing.

Using Twelve it's easy, as you can use its score editor to view it in normal music notation. There's one small problem though. Twelve only records on one track at a time, so all incoming data for ALL the parts ends up on one track. When you view it you see all the parts at once, and on playback everything plays in the same voice. It looks and sounds extremely odd, to say the least!

But there's a way round it - you can record each part separately on a different track in separate recording runs, then give each track its own channel and voice to recreate the original sound. However, this creates a new snag - if you're making four separate recordings how do you synchronise the four parts so they all play back exactly in time? The answer is to lock Twelve to the PSS's timing clock by switching Twelve into its MIDI sync mode before recording each track. The two will then start together, run at exactly the same speed, and stop together. Neat, huh?

Now, having captured the PSS's MIDI data you can treat it like any other MIDI data. You can edit it,

rearrange it, incorporate it into your own music, and play it back in any way you want. OK, so this is cheating, but it can be helpful if you need some ideas to help you along.

SNIPPETS

.... **Don't forget** the MIDI Music Show being held at the Novotel, Hammersmith, London on 7-8 April starting 10:00am. Many of the major hardware and software suppliers will be there, and special seminars covering all manner of MIDI related subjects will run throughout the show. It's a great idea, spoiled only by the crazy entrance price - they want £10 (yes, ten quid!) at the door. However if you phone Westminster Exhibitions on 01-549-3444 you can buy advance tickets at £5 each.

.... **If you're looking** for new MIDI equipment make sure you check out Casio's current special offers. Like Yamaha, they've recently been slashing prices on MIDI keyboards and expander modules, with some selling at less than half price.

.... **I've already received** enquiries about supplementary software for MIDI Master for the XL/XE. It's probably too early to ask, but has anyone out there yet written anything - such as MIDI Master sequencer file editing software, or a program to translate sequencer files into Advanced Music System format? If you know of anything, please write and let me know.

.... **Although** I've had several letters from readers, I've not yet received any new PSS voice patches from anyone. Come on, you guys - lots of you now have Dave Gymer's PSS voice patch editor, so what are you doing with it? Repay your debt to the Atari Public Domain community by sharing your creations with everyone. Go on, make the effort NOW - just send your patches to me (care of Page 6, and with SAE please, if you want a reply) and I'll publicise the good ones in this column starting in the next issue.

GET PSSED!

To make building those PSS patches even easier try getting PSSED. (Sorry, I couldn't resist it!). PSSED is a brilliant new voice patch editor by Bryan Kennerly, now available as PSS Disk 2 from the Page 6 PD Library. Its documentation includes an explanation of what all those PSS voice parameters mean - at last you'll be able to understand what you're doing!

For sequencing using those new voice patches try the Cosh Sequencer, a superb new real-time sequencer named after its author Henry Cosh. Its design was heavily influenced by the specification for an 'Ideal Sequencer' published a while back in Sound On Sound magazine. Again, the program is now available as a Page 6 PD disk.

First impressions of these programs are that they're the best Public Domain music software I've yet seen. In fact, I can hardly believe they're PD programs, as both have the look and feel of good quality commercial products! They're real bargains at just £2.95 each from Page 6. I'll give you a full report on both programs in the next issue.

DAILY DOUBLE

HORSE RACING

Fancy a little flutter on the gee-gees, but don't want to lose your shirt? Then take a look at this new horse racing simulation from CDS - it could be just what the poor punter needs.

The program's colourful packaging seems to be full of old newspaper at first sight, but after unfolding it you find it's the program's instruction manual - in the form of a racing newspaper. The front page of this contains the program's operating instructions, plus detailed explanations of the finer points of betting. These include how to read the racing form for each horse and the ability of each jockey, descriptions of different types of bet, how to place a bet, and how the odds work. The rest of the paper is dedicated to page after page of racing form for the 180 horses in the program's database.

The first thing that strikes you is that the program isn't modelled on racing as we know it in the UK. In fact, it was written in the USA by Artworx, so has a decided American flavour. All financial aspects are quoted in dollars and some very peculiar terms are used to describe the betting. Have YOU ever heard of an exacta, quinella, or parlay bet? I certainly hadn't, but perhaps my ignorance can be forgiven as I'm not really into the 'sport of kings'.

One to four players can take part, each starting with up to \$500 stake money. A game consists of ten flat races (there's no

jumping involved), and you can place from \$2 to \$200 on the bets of your choice, of which you can have up to 15(!) at any one time. Bets can be straight wagers for win (horse comes first), place (horse comes first or second), or show (horse comes first, second, or third).

These are similar to win and each-way bets in UK racing terms.

Alternatively, you can try the strange sounding bets mentioned above. In the exacta you have to name the winner and the second to finish in a given race. The quinella is similar, except it doesn't matter which of the two horses finishes first. A parlay bet is one where you pick two horses from any of the ten races, which you can then bet to win, place, or show. Any winnings from the first horse are used as the stake money for the second one. There's also the Daily Double, from which the program takes its name. In this you have to pick the winners of the first two races in each game, with winnings calculated from the combined odds of the two horses. It sounds complicated, but you soon get the hang of it.

Once all bets are placed, your direct involvement is over - you just watch as the horses lose your money for you! After a brief musical fanfare a voice which sounds like Burl Ives says "And they're off!" as the horses start galloping across the screen. I expected to hear the thunder of hooves, but was disappointed to hear just a tinny clattering sound. It's a pity the author couldn't have used sampled sound effects for this - it would have been much more effective.

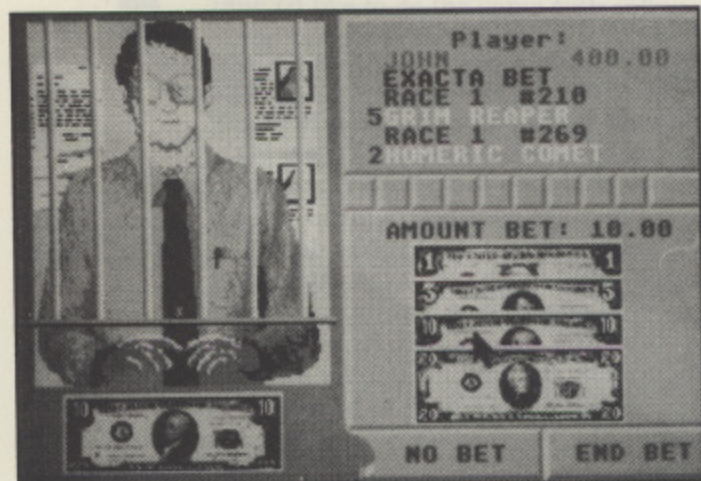
The galloping horses don't make much progress across the screen, as your view is like that from a camera mounted on a truck running alongside the track. The background scrolls by, but the horses stay on the left side of the screen, with their relative positions changing as different horses try to take the lead. Performance is affected by



track conditions, which can be turf, dry, or muddy (Americanisms again?). Eventually the winning post scrolls into view and Burl Ives announces the winner, as the horses finally clatter off to the right. The graphics of the horses are rather good, and the detail even extends to moving shadows on the track below them, however the effect is spoiled somewhat by the slow screen update rate which is only about four frames per second making both the animation and scrolling a little on the jerky side.

If you're fed up with football, winter sports, and motor racing games Daily Double could make a welcome change. It doesn't, however, offer the same level of player involvement as most other sports simulations and this, coupled with its lack of overall polish, could result in its novelty value soon wearing off.

- **GAMEPLAY** - not enough variation or direct player involvement to hold your interest for long periods. Perhaps a 'stun gun' option would help!
- **SIGHT AND SOUND** - animation and scrolling is rather too jerky. Sound is sparse and generally crude, although the digitised speech is clear
- **VERDICT** - I found the game quickly became boring, but playing it with a few friends makes it much more interesting



Title: **DAILY DOUBLE HORSE RACING**
 Publisher: **CDS Software**
 Price: **£19.95**
 Reviewer: **John S Davison**

BEVERLY HILLS COP

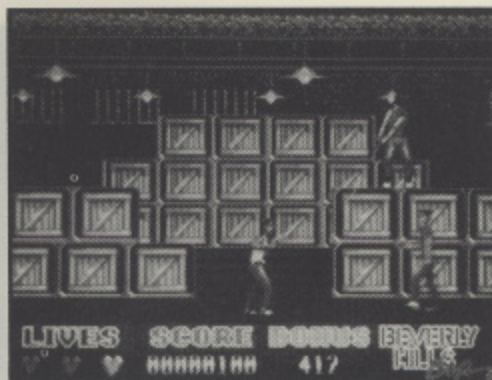
This game springs from the highly successful film starring Eddy Murphy and once more demonstrates the profitability of the licence deal. The game is split into four parts. The first a stroll through a warehouse full of undesirables who desire to blow away poor Axel (the cop of the title) while he shoots his way through them. The graphics and effects are adequate for this but there is nothing especially outstanding about them. The whole scene is competent with only slight jerkiness noticeable. There follows a driving game which allows the user to choose mouse or joystick as the steering wheel. It is also necessary to shoot the criminals waste chests in order to survive the chase to section three. Again the controls and effects are fair and workmanlike but still not outstanding. The next two

screens are variants on the first theme although the final game's 'rescue the hostages' format makes for slightly faster reflexes being needed. All of these are perfectly adequate but not particularly eye catching games.

I felt that this whole experience lacked any real feel of the movie and missed much of the inter-play between Murphy and the two local cops. The overriding impression is of four games that would find difficulty on their own being sold under the cover of a large name licence. The packaging of the game is good showing pictures from the film both on the box and between levels and the reproduction of the theme is more than adequate but unfortunately this does not make up for some fairly

unimaginative gameplay and a plot line that is only vaguely related to the original story. It lacks the wit and panache that Murphy offered to the film and it does not afford the player any chance to interact with other major characters.

My own feelings are that buyers who either purchase on impulse or do not have the option to play test games are going to find themselves most disappointed with this offering from a firm that can do much better. I would find this hard to recommend without the proviso the the prospective buyer should take a good long look at it first, really not a good advertisement for the film either!



FACTS

Title: **BEVERLY HILLS COP**
 Publisher: **Tynesoft**
 Price: **£19.95**
 Reviewer: **Damon Howarth**

SIGHT & SOUND

Good reproduction of the theme and fair spot effects, graphically average with no real problems evident

GAMEPLAY

Smooth and responsive controls make play acceptable although the actual games do not show any addictive features

VERDICT

Not a good advertisement for the film or the licensing business. Extremely average all round

FACTS

Title: **SOLDIER 2000**
 Publisher: **Artronic**
 Price: **£19.99**
 Reviewer: **John Davison jnr**

SIGHT & SOUND

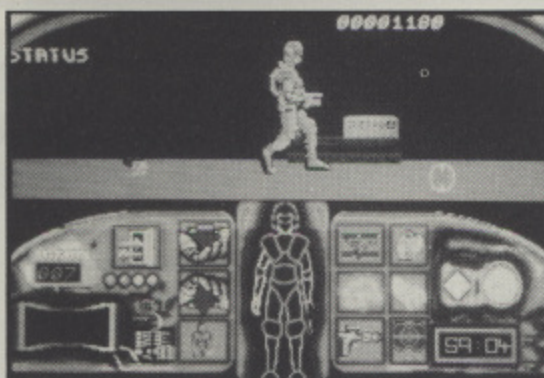
The game doesn't shout out to you in terms of presentation, but it is of a more than passable quality

GAMEPLAY

Very addictive. Definitely a game which could keep you quite happily involved for hours on end

VERDICT

Certainly worth checking out due to its highly addictive qualities



SOLDIER 2000

different ways. The first is a two dimensional view of the proceedings

This game has you playing the part of a female combat soldier of the future whose mission is to rescue hostages from ruthless and deadly terrorists.

The game begins with you kitting out your combat soldier with body armour and any number of nasty weapons, ranging from pump action shotguns to grenade launchers or experimental pulse laser weapons. Once you have finished in the armoury, your soldier is transported to the first zone where she must rescue the first batch of hostages, by shooting terrorists in order to gain access to the imprisoned men.

The action takes place in two

as you guide your soldier along the corridors of the building looking for rooms where you may find the hostages. Once a room has been located, you may enter and the view is then transformed into a three dimensional 'eye view' of the room as you look around for hostages to collect and terrorists to shoot. The view which scrolls by in this portion of the game is very impressive, as it uses incredibly smooth parallax scrolling (i.e. the foreground scrolling faster than the background).

Apart from the aforementioned scrolling, the game is of average graphical quality. The sound is fairly good with some passable sampled sound

effects and speech samples. The one thing that makes this game stand out from many others on the market at the moment in that it is actually very playable. The theme may be simple (if violent!) and the three dimensional sequence may resemble one of my all time least favourite games - Prohibition - but overall it is incredibly addictive. It would be quite easy to find that the best part of an evening could disappear while playing this game!

'overall it is incredibly addictive'

FOOTBALL CRAZY

This management game is sold by mail by the above company and the packaging is straightforward and simple. This exemplifies the game within, which is also very straight forward although less than easy to do well at. The game is, basically, a more detailed version of the classic Football Manager without the graphics. In it the player(s), of which there may be up to four at any one time, compete as managers in the English Football League both weighing their chances and players abilities against the form of other players and the computer teams. There are plenty of opportunities to buy and sell players and certainly at the early stages an almost J.R. Ewing wheeler dealer attitude is needed. The game watches each player's progress and moderates the difficulty level as you improve or fail. Should

either of these possibilities occur in excess then the player will be either offered new contracts by better clubs or fired and can only hope to pick up clubs desperate for any sort of help.

The game is entirely menu driven with no graphics at all. The results sequence shows up as the classified check in any Grandstand type programme with not even any other report of the game available. Discovering who scored is a matter of examining the team to see whose goals scored columns have grown. The possibility of error checking is poor since I discovered it was quite possible to play two goalkeepers in one team at the same time in order to improve my shooting skills. Subsequent results did show I scored more than earlier.

Exeter V Lincoln			
START OF SEASON			
Goalkeeper	1	Injured	0
Defence	4	Suspended	0
Midfield	3	Loans In	0
Selected	11	Loans Out	0
		Total	15

JOHN	Exeter
MONEY	72000
LEVEL	7

MAIN MENU	
FILE	
TABLES	
GAMES	
PLAYERS	
NEXT	
OPTIONS	
PREVIOUS	

Brian Clough would be impressed! I managed to take myself via four different teams to the top of the first division and to various European and domestic cup games and there seemed little I could do to either help or hinder my teams at times. Results appeared with little explanation as to what statistics were helping or otherwise.

I was also perturbed when at the start of my seventh season the game ceased telling me this was a review copy and I had had enough time to experiment, I find this unfortunate since I cannot guarantee that the game reviewed is the full game or that it will stand up to prolonged play.

FACTS

Title: **FOOTBALL CRAZY**
 Publisher: **ESP Software**
 Price: **£19.95**
 Reviewer: **Damon Howarth**

SIGHT & SOUND

Almost not applicable, there are no sound effects and the only music and graphics are on the loading screen but the game doesn't need them

GAMEPLAY

So much is hidden that there is difficulty in making decisions based on anything other than gut feeling, but the game is, nevertheless, interesting to play

VERDICT

A funny old game! Quite playable but it could have been presented much better, I hope the updates promised improve on its general raggedness.

FACTS

Title: **SPACE HARRIER**
 Publisher: **Elite**
 Price: **£19.99**
 Reviewer: **Damon Howarth**

SIGHT & SOUND

Good sprites, bright colours and loud noise - everything in this is right

GAMEPLAY

Fast and fun with plenty of addiction thrown in - a pleasure to play

VERDICT

I don't usually like conversions but this one is excellent, collect it as soon as possible



SPACE HARRIER

the local, fauna which is attempting to blow away the hero, in the shortest time

Space Harrier was a big hit in many arcades last year. A basic shoot-em up that had speed, colour, noise and a little style to it. Elite have taken this and created a highly creditable two disk version for the ST. In the game the player takes the part of a Space Harrier, a form of Dirty Harry in jet boots wielding a most powerful laser rifle. The copy of the game I received had no instruction sheet with it and no instruction or story on screen and so it was just as well that the game is simple to play. The whole idea is to dodge various obstacles like rocks or trees and the odd column or giant mushroom while shooting at

possible.

The control seems to be by mouse only and as such should be hailed by the makers of spare mice as a definite asset to their business. A great deal of button pressing left the little grey beast looking for a rest. It is though the perfect way to control a game of such pace since the control is accurate and most precise.

The sound and colour are not shamed by the original at all and the overall effect is most exhilarating. The only quibble I can find with the game is that visibility is sometimes a little crowded when many explosions fill the screen and the next enemy appears without the player seeing it. This

seems like a very good example of the fog of war, but it does mean that the end of level meanies can sneak up and shoot you full of flame without the player having much chance of avoidance. This trifling problem aside I was pleased to note that a continue feature was available and the three credits allowed kept interest going into the game. The second disk can be played alone although it seems that much early practice would benefit the shooter since this level is very fast and exceedingly furious.

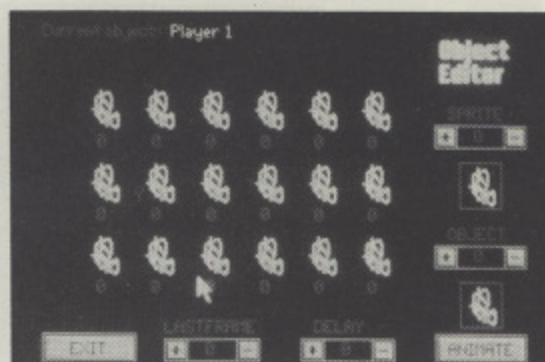
I enjoyed this game and found it suitably addictive and happily accurate to its forebears. My mouse on the other hand is considering that it would rather be fed to the cat or play Dungeon Master. This game is one I can happily recommend to all arcade freaks.

S.E.U.C.K.

The banner headline on the box proclaims "Now everyone can create their own computer games!". Possibly true but only should your desire be to create variants on a theme of a vertical scroll. The package contains several useful parts including sprite designer, background creator, music generator, sound creator and animation editor. Unfortunately they all only really work within the confines of the constructor and thus the overall power is limited.

To create a game is relatively simple, given an ability to create sprites and a great deal of patience in using the very friendly editing equipment. The first things to do are load the sprite editor and draw the various pictures you wish to use, or alternatively remodel those included with the set. The system then allows you to

change their palette and identify them for subsequent animation. Sprites can be combined to create quite spectacular large monsters and indeed each of the other functions that follow allows construction of similar ease. Editing the three sample variant games can give a range of different types of one of three games and this is in fact my main worry. The software itself is excellent and allows the use of imagination in a very limited way, but if you want a platform and ladders game then the creator will not work, if you want a driving game then you would have immense problems, in fact you can only make games in the Sidewinder or Xenon mould. As such the utility is very limited but what it does it does very well indeed.



I must admit that I kept comparing it to STOS and felt that the two packages were capable of producing a Shoot-em up of comparable standards, although to obtain the slick scrolling of S.E.U.C.K. the STOS compiler would be necessary. Both can make stand alone games but STOS would allow any variant on a theme or a completely original idea to come from the user if they had the skill and thus represents a far more versatile utility. For someone with little or no skill in programming though S.E.U.C.K. is a god-send. With imagination some very entertaining creations are possible but do not expect a wide variety from the package.

FACTS

Title: **S.E.U.C.K.**
Publisher: **Outlaw (Palace)**
Price: **\$29.99**
Reviewer: **Damon Howarth**

SIGHT & SOUND

Basically what you make them. Supplied games are colourful and noisy. Loads of potential

GAMEPLAY

Most user friendly, supplied games can be altered and cheated with at will, the utility is easy and intuitive

VERDICT

Although limited in scope it does the job very well. Good for the less technical but imaginative types

FACTS

Title: **NEVERMIND**
Publisher: **Psychapse**
Price: **\$19.95**
Reviewer: **John Davison jnr**

SIGHT & SOUND

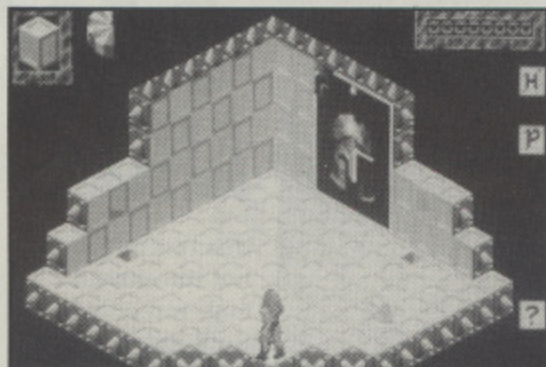
As with all Psychapse products the presentation of this game is absolutely superb. The graphics are well defined and the sound is of good quality

GAMEPLAY

This is very addictive once you are familiar with the novel methods of control employed

VERDICT

Excellent! A different game which combines both strategy and arcade action into one package



Nevermind is the latest release from the Psychapse label Psychapse. The packaging describes the game as a "...refreshingly inventive game that will have you juggling your joystick and agonizing over its mind muddling problems until the early hours of the morning." Your task within the game is to make your way through over 250 screens, each of which contains a picture puzzle which must be completed in a set time. You must collect picture tiles from around the three dimensional playfield and fit them into the gaps in the puzzle picture to complete it. However, to make life more complicated for you the

NEVERMIND

pictures are sometimes animated, making them seem more complex than they

really are. On higher levels you will find picture tiles which dissolve, along with chess pieces which have an annoying habit of stealing away with vital parts of the puzzle.

In very simple terms the puzzles of each screen could be likened to the old plastic 'slider' puzzles where you have to juggle around the individual square tiles making up the picture in order to make it complete. However, in Nevermind, you must juggle the pieces around by walking your character around the screen picking up and sorting out the various pieces of the puzzle.

The game is graphically superb, with some beautifully

drawn backdrops and very well defined and animated sprites. The sound is also highly commendable.

The game is very challenging, and once you have got used to the methods of controlling your character to perform the required actions the game becomes very addictive indeed. The idea is quite original, which makes a change in today's game market and I thoroughly enjoyed trying to get through the various levels. One thing which I must mention is the way in which you can 'jump' past levels you have completed. Each screen has its own 'password' and if this is typed in on the options screen you will be automatically transported to the level whose code you have entered. This is a nice touch which more games should employ! Top class stuff from Psychapse.

DEMON'S TOMB

Ancient references to twin priests ... the Forbidden God ... Rites of Summoning halted by the good twin ... the evil one waiting millennia for the right time to try again ... strange deaths on the moors ... "the heart wasn't so much damaged as torn to pieces" ... and your father has mysteriously disappeared while exploring an ancient burial mound!

It is down to you, Richard Lynton, to save the world from the foul touch of Darsuggotha! Once you realise that something is wrong you must solve many tortuous puzzles and risk countless dangers in order to find the lost burial chamber of Thai so that he can stop his evil twin!

First you get to play a short prologue as your father. Doomed to die by fire in the burial mound, you must preserve enough clues so that

Richard will be able to understand the crisis and set out on his deadly quest.

Demon's Tomb can be played as a traditional text adventure (with pictures), or via Menu Mode. This displays all the verbs in a scrolling window at the bottom of the screen. Select one with the mouse to get a list of all the relevant nouns, point at one of those and your command is executed. Longer sentences can be made by selecting 'verbs' such as BREAK WITH and you can skip around the list of over 100 verbs by typing the first letter of the one you want. With a little practice you get to play a full text adventure without typing any words! The game features lots of other goodies - powerful parser, Ramsave, Undo, user-defined abbreviations, recall

and edit, large text, etc. (Menu Mode doesn't work with large text, but by choosing the right colours you should be able to read it all on a TV.) There are lots of hints in the copious text, and the manual provides coded clues as well!

EVERYTHING in the prologue has a use later on (though they are NOT all necessary to win), but even when you have worked out how to save the items from the fire there is only JUST time to do it if you are very careful not to waste any turns. Some of the responses and idiosyncracies of the game are a LITTLE annoying in a few places, but overall Demon's Tomb is an very enjoyable experience.

COD POEM \$8.00
In recent weeks his father had ignored his job at the university and had taken to spending several days at a time away from home. For that reason, Richard was not too shocked when his father failed to return home on his birthday as promised. Several days later, Richard's anger turned to concern and he began to fear that something may have happened to his father. Despite this, he was unable to talk himself into sending the police out to search for him. The more plausible explanation, he felt, was his father's worsening obsession with excavating the burial mound. For this reason, Richard had set off alone (well, almost alone) to find his father and finally talk some sense into him.
The car park.
Richard is in a small National Trust car park just off the main road. Beyond the road to the north is open moorland, and beyond that is the sea. The views to the south are spectacular. There, the wind stunted heather turns into dense woodland and descends rapidly into a deep, winding valley. A steep path leads south, straight down the valley side.
He can see Sam.
(Press F1 to see picture)

FACTS

Title: **DEMON'S TOMB - THE AWAKENING**
Publisher: Virgin/Melbourne House
Price: **\$24.99**
Reviewer: John Sweeney

SIGHT & SOUND

Some nicely atmospheric pictures can be displayed at various points in the game

GAMEPLAY

A nice implementation of a text adventure with a reasonable vocabulary, but where you DON'T have to type!

VERDICT

An excellent adventure for beginners, but with enough twists to keep the experienced player perplexed!

FACTS

Title: **GHOULS AND GHOSTS**
Publisher: U.S. Gold
Price: **\$19.99**
Reviewer: John Davison jnr

SIGHT & SOUND

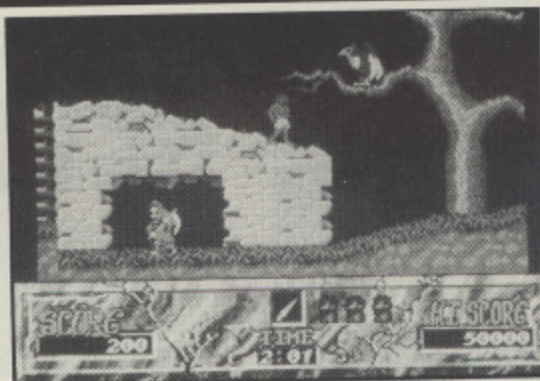
Both the graphics and sounds are of a high quality. The music shows what can be done with the ST's 'mediocre' sound chip

GAMEPLAY

This is a very addictive game, as it is enough of a challenge to make you want to go back for more despite the frustration which this causes!

VERDICT

What can be said that hasn't been already? Ghouls and Ghosts is truly superb. However, it could be just a little too late as the Ghosts and Goblins



This is yet another game which is a development from an old arcade machine. In this case the game is based on the old classic 'Ghosts and Goblins'. The original conversion from the highly successful arcade machine was made available on several 8-bit computer formats a number of years ago and was a tremendous success. Several years later, a sequel has been written in the form of 'Ghouls and Ghosts' - almost identical in form but taking advantage of today's improved graphics and sound. You play the part of the valiant and brave knight Arthur, who has to rescue a beautiful princess. However,

GHOULS AND GHOSTS

this rescue job is not the easiest task you could undertake! You must fight your

way through a variety of ghouls, ghosts, vultures, and various other nasties using a number of weapons which you can find lying around. The game is basically a two dimensional scrolling affair where you view the proceedings from the side as you move your 'dinky' little knight through the dark and sinister land.

The graphics in 'Ghouls and Ghosts' are of a very high quality and compare very well to the original arcade game. The sprites and backdrops are all beautifully shaded and the screens manage to conjure up the sort of 'sinister' atmosphere which the game needs. The game is full of nice little ideas, such as the first time

you are touched by a creature you do not automatically lose a life. Before this occurs you first lose your armour and carry on through the game wearing nothing but a pair of boxer shorts! The sound is also of a very high quality, the tune which plays throughout in the background is extremely good and goes to show that if the sound chip in the ST is used properly some beautiful effects can be obtained.

Above all, the one thing which you notice while playing is just how incredibly playable and addictive it is.

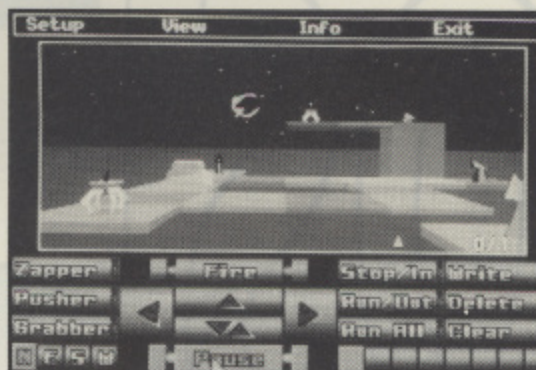
A nice feature is the system of 'credits' where you can begin where you died at the end of the last game. This however depends on whether or not you have enough credits left. You begin with five, so effectively you have five sets of lives to play with!

TOWER OF BABEL

Whew! I have just finished 117 mind-bending levels of 3-D puzzles! This has to be one of the best games of its type ever! Tower of Babel is a mouse-driven strategy game with solid 3-D shaded graphics. You control three spider-like robots: Zapper zaps things, Pusher pushes things, and Grabber (apart from grabbing things) can operate a number of special items.

The 'towers' are 3-D landscapes, each one up to 8 squares by 8 squares and up to 4 levels deep. Lifts move you between the levels, which are populated by a variety of enemy robots: zappers and pushers, worms and watchers, flags and hoppers, lizards, time bombs and proximity bombs, obstructive blocks, prisms to help you shoot around corners, convertors (zaps become

pushes and vice versa), 'Klon-dikes', and remote lift activators, enemy freezers, floor wipers and teleport stations for Grabber to operate! Not surprisingly this wide array of game elements makes for some pretty complex puzzles as you try to achieve the objective for each tower - either a body count or a number of Klondikes to collect. Your surroundings can be viewed either from the eyes of your robots, or from remote cameras which can pan and zoom to help you work out how best to instruct your robots. You can click on the control panel to control your robots directly (walk, turn, use lift, or zap/push/grab). Or you can give your robots up to eight commands each in advance and then sit back and watch through the cameras.



This 'programming' of the robots is critical on some levels - to save time, to synchronise actions (e.g. Grabber activates a freezer to give Zapper time to walk past a zapper and blow it up), or because some actions are carried out at different speeds under 'program' control.

An excellent tutorial helps to get you started, and two out of each group of nine towers can be skipped, so you don't get stuck just because you can't solve them all.

Some of the higher levels are pretty fiendish, but if you get really flummoxed you can always resort to using the excellent Tower Designer to build your own towers!

FACTS

Title: Tower of Babel
Publisher: Rainbird/Microp-rose
Price: £24.99
Reviewer: John Sweeney

SIGHT & SOUND

Excellent 3-D graphics, lots of nice effects

GAMEPLAY

Excellent mouse interfaces, lots of options, lots of excellent puzzles

VERDICT

Excellent value if you like a good puzzle. Basically... excellent!

FACTS

Title: Double Dragon II
Publisher: Virgin
Price: £19.95
Reviewer: John Davison jnr

SIGHT & SOUND

The graphics are smoothly animated and colourful although they do seem a bit 'blocky'. The sound is sparse, with only a few effects being present

GAMEPLAY

Quite good compared to other fighting games as it actually has a goal for you to aim at

VERDICT

I was quite surprised as to how much I enjoyed playing it. I can highly recommend it for fans of the genre



DOUBLE DRAGON II

surprise, you play the part of this dynamic duo as you fight your way past a variety of

bad guys each of whom have their own particular brand of 'dirty' fighting.

Unlike many fighting games this is much more based around street fighting rather than Karate and it gives your characters the ability to fight as they want. They can pick up objects and throw them at their assailants, throw knives, use those spiky whip type things or other items the names of which I haven't the foggiest notion. No doubt in real life these items are used to inflict as much pain as possible. Not nice!

Graphically the game is one of the many which fall into the category of 'average'. The sprites are all bold and colour-

ful and the backdrops which scroll by smoothly are equally colourful, although they do seem to be quite 'blocky' in appearance. The sound appears to consist of some very sparse sound effects, making me wonder whether the review copy is a development version, as there seems to be far too little of it.

I have never been a great fan of these gang fighting games and I tend to find that they get just a little on the boring side. However, Double Dragon II is considerably more playable than other games of this type I've encountered.

'use those spiky whip type things'

Peter Hickman's

STOS

COLUMN

**A superb new
large sprite
creator from
Francois
Lionet**

**A mini sprite
scrolling
demo**

**Don't forget
that games
competition
with £200
worth of
prizes!**

Oh boy, what a hectic time the past couple of weeks have been, the new STOS products which I reported back in November have finally (after a series of unavoidable delays) started to appear.

Games Galore, the compilation of best entries from the 1988/89 STOS competition is brilliant, and comes with a new extension called STOS Squasher which gives you commands to compact any piece of data (pictures, sound, even programs!). TOME the Total Map Editor has been released by Shadow Software, this is yet another new extension for STOS that allows you to manipulate giant maps, useful if you want to create games like Ghouls & Ghosts or Rainbow Islands. I have even used it to write a nice scrolly demo involving the obligatory scrolling message and a giant hotdog (weird!). Last but not least is an excellent book by the author of the STOS manual, Stephen Hill. The book contains something for everyone, from basic psuedo-code and structuring techniques to information on the creation of your very own STOS extensions. There are lots of example listings and each one has its own breakdown, the book even examines the techniques used by Francois Lionet when he wrote Zoltar and Orbit. I understand the book and Games Galore are being sold by Page 6 Publishing so check out their catalogue if you have trouble finding the bits and pieces at your local retail outlet. TOME is, unfortunately, only being sold by mail order directly from Shadow Software although I have heard rumours that Mandarin were so impressed with it that they may decide to take it on, so it may appear in your shops by the summer (but if you cannot wait drop Shadow Software a line to find out more about TOME, their address is at the end of this article).

AMOS (the Amiga - spit, spit - version of STOS) has been delayed once again and won't be making an appearance until APRIL, although there is a demo floating about the PD libraries which should im-

press a few people. The demo is fantastic and even lets you look at the source code so you can see how easy AMOS is to use. The creator of this demo is a well known STOS user and journalist, and writes for a brilliant magazine called New Atari User. Ok it's me, but don't worry I won't be deserting STOS 'cos the ST is about five hundred times more friendly than the Amiga and I'm looking forward to STOS Plus because, judging from what Francois has learnt in recent months, STOS Plus should be mindblowing. Until that time STOS (which is still by far the best language on the ST) will continue to teach me things that I never thought possible in BASIC! Anyway if you own an Amiga as well as an ST (lucky thing!) it's worth checking out the demo just to see what sort of things could appear in STOS Plus.

HELLO FROM FRANCOIS LIONET!

More news. Francois Lionet has contacted me and would like to say hello to all the STOS users who read this column, he writes a STOS column for a French magazine and is very interested in getting a sort of program exchange going. So from this issue the occasional wonder program will be presented together with the usual breakdown so we can all learn new things about STOS from a master programmer (that's you Francois!). In return I will send Francois all of the programs which appear in this STOS column so that he can see what sort of amazing things you have been doing with his creation.

COMPETITION TIME

Competition news - there isn't any! No seriously, I'm writing this before the last issue has appeared so nobody knows about the competition yet (is this making sense to you?). Anyway, in case you missed the last issue (and if so, WHY?) Mandarin and Shadow Software have put up some really fantastic prizes for a small programming competition, all you have to do is write a version of a game which

you considered to be an 8-bit classic, it could be Asteroids, Lode Runner, Jetpac, Choplifter just about anything as long as it appeared on an 8-bit machine.

Prizes are really good, a list of which can be found in the last issue, but if any of the games are good enough both Mandarin and Shadow Software have expressed an interest in marketing them (fame at last!). You can find a list of the **Competition Rules** in the last issue but in case you cannot find a copy here are the main ones-

1. The game must be written in STOS.
2. A similar game must have appeared on an 8-bit computer.
3. Closing date is the 25th of APRIL 1990.
4. Any entries which are not considered to be of marketable quality (they might still win a prize!) will be placed into the Page 6 public domain library for all STOS users to enjoy and learn from.
5. The entries will be judged by myself and representatives from the companies supplying the prizes and our decisions are final (so there!).

If you do decide to enter (and I hope lot's of you do!) please remember to include with your entry the name of the game (and the name of it's affiliated 8-bit version), your name and address (and phone number if you have one), and finally any special requirements the game may need. I'm really looking forward to seeing your STOS creations, my game Treasure Search has been in the public domain for quite a while now and a few people have actually written to me saying how nice it is, so thanks STOS'ers, your comments and suggestions are always welcome.

ANY QUESTIONS?

Before the programming bit let's have a new feature, questions and answers. I have just received a letter from Mike Tester of Surrey, it was dated August the 30th, sorry this has taken so long Mike but your letter was obviously lost in the piles of mail New Atari Users gets every

day. Anyway Mike writes-

"Some time ago I purchased a copy of STOS, I am having great fun learning how to use it to the best advantage, however I have come across a minor problem, which is I would like to use two joysticks. I am only a beginner in the art of programming who is trying to write a simple shoot them up game for two players using joysticks. I have studied the manual and cannot find any way in which a joystick can be used from the mouseport. Does anyone know if it is possible, if so can any one tell me what I

would need to do?"

Well Mike, there is no simple answer to your problem, STOS has no direct facility for reading a second joystick and the only routines I have seen that would be of help use illegal calls to the operating system, this has the disadvantage of making them incompatible with different versions of TOS. Help is at hand though in the form of Cartoon Capers which was the winning entry in the STOS competition of 1988/89. Capers uses a special extension to STOS which allows you to

continued

```

1 rem *****
2 rem *   Big Sprite maker   *
3 rem * By Francois Lionet 1989 *
4 rem *   *
5 rem *   Public Domain !   *
6 rem *****
10 NBLMAX=10 : dim BLOC$(NBLMAX),TX(NBLMAX),TY(NBLMAX)
50 default : erase 1 : erase 2 : NIS=file select$("%.MBK","Load a Sprite bank")
55 if NIS="" then end
60 load NIS,1
65 key off : curs off : mode 0
70 A=hunt(start(1) to start(1)+length(1),"PALT")+4
75 for X=0 to 15 : colour X,deek(A+X*2) : next X
80 NS=1
100 hide on : back=default back : cls logic : cls back
101 sprite 1,x mouse and $FFF0,y mouse,NS
105 K=mouse key : if K=1 then put sprite 1 : while mouse key : wend : goto 101
115 A$=inkey$
120 if A$="+" then inc NS
125 if A$="-" then if NS then dec NS
130 if A$=" " then 100
135 if A$=chr$(13) then 200
140 if A$=chr$(27) then end
145 if A$="G" or A$="g" then 400
150 goto 101
200 sprite off : update : screen copy logic to back : auto back off : X1=0 :
Y1=0 : X2=319 : Y2=199
205 XM=x mouse and $FFF0 : YM=y mouse : K=mouse key
210 if K=1 and XM<X2 then X1=XM
215 if K=1 and YM<Y2 then Y1=YM
220 if K=2 and XM>X1 then X2=XM
225 if K=2 and YM>Y1 then Y2=YM
230 screen copy back to logic : ink ENC : inc ENC : ENC=ENC mod 16 : box X1,Y1
to X2,Y2 : show on : wait vbl : hide on : locate 0,24 : centre " Block
"str$(NBLOC)+" "
235 A$=inkey$ : if A$="" then 205
240 if A$=" " then 100
245 if A$=chr$(27) then end
250 if A$=chr$(13) then 300
255 if A$="+" and NBLOC<NBLMAX then inc NBLOC
260 if A$="-" and NBLOC>0 then dec NBLOC
265 if A$="c" or A$="C" then centre "Erasing block"+str$(NBLOC) :
BLOC$(NBLOC)=" " : wait 50 : centre space$(30)
270 goto 205
300 centre "Set bloc"+str$(NBLOC)
305 BLOC$(NBLOC)=screen$(back,X1,Y1 to X2,Y2) : TX(NBLOC)=(X2-X1)/16 :
TY(NBLOC)=Y2-Y1
310 wait 50 : centre space$(30) : inc NBLOC : if NBLOC>NBLMAX then NBLOC=NBLMAX
315 goto 100
400 NBB=0 : for N=0 to NBLMAX : if BLOC$(N)<>" " then inc NBB
405 next N : if NBB=0 then bell : goto 100
410 default : centre ">>> Bank Creation <<<" : locate 0,5 : erase 2 : reserve as
data 2,1000000
415 loko start(2),#19861987 : loko start(2)+4,#12 : loko start(2)+8,#12 : loko
start(2)+12,#12 : doke start(2)+16,NBB : doke start(2)+18,0 : doke
start(2)+20,0
420 AA=start(2)+22 : AP=AA+NBB*8
425 for N=0 to NBB-1 : loko AA+N*8,AP-AA : poke AA+N*8+4,TX(N) : poke
AA+N*8+5,TY(N)
430 print "Sprite";N+1;" X size = ";TX(N)*16;" / Y size = ";TY(N);" ----> Input
the hot point co-ords:" : input PX,PY
435 if PX<0 or PY<0 then 430
440 poke AA+N*8+6,PX : poke AA+N*8+7,PY
450 TM=TX(N)*TY(N)*2 : TLM=TX(N)*2 : TLS=TX(N)*8 : AB=varptr(BLOC$(N))+8
455 for Y=0 to TY(N)-1 : for X=0 to TX(N)-1
460 A=AB+Y*TLS+X*8 : M=$FFFF xor (deek(A) or deek(A+2) or deek(A+4) or
deek(A+6))
465 doke AP+Y*TLM+X*2,M : next X : next Y
470 AP=AP+TM : copy AB,AB+TM*4 to AP : AP=AP+TM*4
475 next N
480 erase 1 : reserve as data 1,AP-start(2) : copy start(2),AP to start(1) :
erase 2
485 NIS=file select$("%.mbk","Save the new Sprite bank")
490 if NIS="" then 50
495 save NIS,1
500 erase 1 : goto 50

```

Francois Lionet's Big Sprite maker

read a joystick in the mouse port, this routine will be given away with Cartoon Capers when it is released (sometime in March I am assured). Unfortunately I have not had the chance to try it out yet but I have seen it in action and it seems to work very well.

THE PROGRAMS

Programming time. The first of this issue's programs (see previous page) comes from Francois Lionet himself, he has written a nice program that takes your sprites and joins them together to make even bigger sprites, he says the size of the joined sprites is unlimited but STOS will do strange things if they are larger than 128x128 pixels because that is the maximum size of the STOS sprite buffer. Type in LISTING 1 for some big sprites.

HOW IT WORKS

LINE 10 - Set's up the variables needed by the program.

LINE 50-60 - Clear any sprite bank that may be in memory and then present you with a file selector.

LINES 65-100 - Clear the screen and change the palette to that of the sprite bank.

LINES 101-105 - Allow you to draw with the sprites.

LINES 115-150 - Control the whole program, jumping to various routines when a particular key is pressed.

LINES 200-290 - Mark a box around the area of the screen you want to turn into a sprite.

LINES 300-405 - Grab the block of screen and store it in the variable BLOC\$() using the SCREEN\$ function.

LINES 410-480 - Perform the complex task of converting the SCREEN\$ data into sprites, although this may look incredibly complicated it's easy to tell we are dealing with sprites here because of the sprite bank identity number \$19861987 contained in line 415, this is LOKE'd (LOKE is the version of POKE for longwords or 32 bit numbers) into the beginning of the new bank.

LINES 485-500 - Display a file selector save the new bank.

Now if the listing seems a little bit messy and not too well structured don't worry about it, all you need to know is that it does the job it was written for (although

```

10 key off : mode 0 : curs off : flash off : hide on
20 load "a:\STOS\PIC.P11",back
30 repeat
40 gosub 160
50 screen copy back to logic
60 gosub 250
70 screen copy back to logic
80 gosub 390
90 screen copy back to logic
100 gosub 470
110 screen copy back to logic
120 until false
130 rem
140 rem ----> Effacement lignes au hasard
150 rem
160 for N=0 to 1000
170 Y=rnd(199)
180 cls logic,0,0,Y to 320,Y+1
190 next N
200 cls logic
210 return
220 rem
230 rem ----> Effacement ligne a ligne
240 rem
250 for Y=190 to 0 step -10
260 if rnd(1) then 310
270 for X=0 to 10
280 wait vbl : screen copy logic,32,Y,320,Y+10 to logic,0,Y
290 cls logic,0,200,Y to 320,Y+10
300 next X : goto 350
310 for X=0 to 10
320 wait vbl : screen copy logic,0,Y,320,Y+10 to logic,32,Y
330 cls logic,0,0,Y to 32,Y+10
340 next X
350 next Y : return
360 rem
370 rem ----> Ligne effacante
380 rem
390 for Y=0 to 195 step 5
400 cls logic,15,0,Y to 320,Y+5
410 wait vbl
420 cls logic,0,0,Y to 320,Y+5
430 next Y : return
440 rem
450 rem ----> Effacement par carre mobile
460 rem
470 for Y=0 to 160 step 40
480 for X=0 to 304 step 16
490 cls logic,1,X,Y to X+16,Y+20 : wait vbl : cls logic,0,X,Y to X+16,Y+20
500 next X
510 for X=304 to 0 step -16
520 cls logic,1,X,Y+20 to X+16,Y+40 : wait vbl : cls logic,0,X,Y+20 to X+16,Y+40
530 next X
540 next Y
550 return

```

Above - screen effects demo by Francois Lionet

Right - Peter Hickman's moving sprite demo

don't ask me how!!!).

Once you have typed the program in, run it and you will be faced with a file selector. Use this file selector to load a previously saved sprite bank and you will now be able to paint with a sprite from your bank. Use the + and - keys on the numeric keypad to change the sprite, press Escape to end the program and press 'G' to create the new sprite bank (but remember to grab the new sprites as blocks first). When you press Return, a large flashing square will cover the screen. You can change the size of this by pressing the left and right mouse buttons to move the corners of the square. At this point pressing Return again will grab that area as a block ready to be turned into a sprite. Pressing Escape will end the program, pressing the + or - keys changes the block number, pressing 'C' clears that block and pressing space allows you to go back and paint with some more sprites. As you can see the

program is a little tricky to get the hang of, but stick with it and you will soon be producing lovely big sprites.

SCREEN EFFECTS

The next program this month is an effects demo (written by Francois once again) to make screens disappear. Type in PROGRAM 2 and have some fun. The listing is so incredibly simple it's not even worth me doing a breakdown, but lets go through it anyway.

LINES 10-20 - Clear the screen and load the picture contained on your STOS boot disk.

LINE 40 - Jumps to the first effect, which sort of makes the screen vanish one line at a time.

LINE 50 - Copies the background screen (which still has a copy of the picture) onto the physical screen (which has just

Some excellent listings including SCROLLY TEXT EDIT, a screen editor for scrolling messages on the Atari, and a screen editor for scrolling messages on the Atari, and a screen editor for scrolling messages on the Atari.

```

10 rem *****
20 rem *          Navy Sprite Patterns          *
30 rem *
40 rem *          By P.J.Hickman                *
50 rem *
60 rem *          New Atari User Issue 44        *
70 rem *****
80 key off : mode 0 : curs off : flash off : hide on
90 load "Animals1.mbk"
100 gosub 290
110 :
120 NUM=7
130 x mouse=0 : y mouse=120
140 :
150 update off
160 for LOP=1 to NUM
170 sprite LOP,x mouse,y mouse,1
180 next LOP
190 update
200 :
210 repeat
220 sprite NUM,x mouse,y mouse,1
230 for LOP=1 to NUM-1
240 sprite LOP,x sprite(LOP+1),y sprite(LOP+1),1
250 next LOP
260 update
270 until false
280 :
290 A=hunt(start(1) to start(1)+length(1),"PALT")+4
300 for X=0 to 15 : colour X,deek(A+X*2) : next X
310 return

```

been erased).

LINE 60 - Jumps to the next effect.

And that's about it, the rest of the program consists of more jumps and the sub-routines themselves, don't you just love simplicity?

SPRITE EFFECTS

Last program this month uses some sprites from your STOS accessories disk to produce a short demo containing that really nice effect that you often see in big Assembly Language demo's, that is a whole bunch of sprites following each other in wavy patterns around the screen. My program is less than 1k in size and allows you to move the pattern of sprites around with your mouse.

HOW IT WORKS

LINE 80 - Clears the screen

LINE 90 - Load's the sprite bank from drive B, you can change the drive and the bank to suit yourself, for this program I have used the ANIMALS1.MBK file from the STOS accessory disk, if you do decide to use a different one please remember to use small sprites otherwise the program will slow down to a crawl.

LINE 100 - Jumps to a subroutine which gets the colour palette from the sprite bank.

LINE 120 - Sets the variable NUM to 7, this is the number of sprites the program will use.

LINE 130 - Moves to mouse to 0,120.

LINE 150 - Switches the sprite update off.

LINES 160-190 - Plot the Sprites in their

original positions and updates the screen display.

LINE 220 - Draws Sprite NUM at the current mouse position.

LINES 230-250 - Do most of the work, the movement of the sprites is achieved by each sprite (starting from the first) moving to the position of the next sprite, so sprite 1 moves to sprite 2's position and sprite 2 moves to sprite 3's position etc. By using this method you can get some really nice effects, but don't move the mouse too fast or it will spoil the smoothness of the whole demo.

LINE 260 - Updates the screen display.

BYE FOR NOW ...

Oh well, another issue comes to an end, next time I will have lots more goodies for you to get your teeth into, hopefully some more masterpieces from Francois, a run down on some of the programs entered in the competition, some more news and loads of other stuff.

Before I give you my address I'd just like to wish Francois Lionet good luck, because he should just about now be starting the French equivalent of National Service, we will all see you in a year Francois, but until then stay in touch and have fun.

I can be found at the following address, please remember that if you do write with any questions an SAE will guarantee an instant response.

PETER HICKMAN
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from PAGE 6

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PAGE 6 back issues represent an excellent way of increasing the enjoyment of your Atari with articles to enlighten you, programs to type in and reviews of software to guide you. Almost all of the content of past issues are as fresh and relevant today as when they first appeared. Disks are available for all issues, containing all the 8-bit programs from each issue ready to run, and they often include bonuses not found in the magazine.

SOLD OUT The following issues are SOLD OUT

ALL ISSUES PRIOR TO ISSUE 31 and ISSUE 35

THE FOLLOWING ISSUES ARE STILL AVAILABLE

ISSUE 31 - Our massive survey on all the WARGAMES available for the 8-bit Atari heads this issue which also includes a great type-in synthesiser listing called ORIGINAL SYNTH. Other listings include FONT FACTORY, a nice character editor and a challenging game called BOWL TRAP. A feature on SSI, more Tutorial Subroutines, a long feature on THE NEVERENDING STORY, reviews of ROADWAR 2000 and THE DUNGEON plus many more are also in this issue. ST SECRETS, a new series on ST programming begins with a look at sound and the ST reviews section includes IMG SCAN, BASE TWO, TEMPUS and many more.



DISK AVAILABLE - All the extra files for ORIGINAL SYNTH set up ready to run plus others

ISSUE 32 - A great card game for 8-bit users called, rather uninspiringly, WHIST plus a two player game of TENNIS and a GRAPH MAKER that works on the 1029 printer. A new series starts on EXPANDING YOUR ATARI and there is an excellent program/tutorial on BUBBLE SORTING. Reviews include THE PAWN, GUILD OF THIEVES, SPARTADOS/U.S. DOUBLER and many more. ST users can find out about programming graphics with ST SECRETS and can read all about the TURBO DIZER, PC DITTO plus reviews of Tanglewood, Defender of The Crown, Winter Olympiad, PROSPERO FORTRAN and more.



DISK AVAILABLE - DOUBLE SIDED with BONUS MACHINE CODE ARCADE GAME only on this disk.

ISSUE 33 - Many readers have said this is our best issue yet with an extensive feature on choosing a printer for your Atari, plus HEAVY METAL, a superb type-in machine language arcade game. Other type-in listings include another game, CRYSTAL CRISIS and two utilities, COLOUR TUNER and SOFTKEY, the latter being a super keyboard 'macro' utility. ST owners can find out more about PROGRAMMING GEM with another article in the series and there are loads of reviews including MASTERPLAN, GUNSHIP and SPECTRUM 512. There's much more in this issue besides, including some great music for the 8-bit.



DISK AVAILABLE - including TWO BONUS GAMES that are not in the magazine.

ISSUE 34 - An ADVENTURE special to delight all fans of Atari Adventuring. Exclusive and extensive interview with LEVEL 9, two TYPE-IN 8 bit ADVENTURES, games reviews, bumper A-Z HINTS AND TIPS for all kinds of adventures, a survey of almost every known Atari adventure and much more. Other items include DAVE T'S DISCO, FLYING BY THE BOOK, TUTORIAL SUBROUTINES, the SHELL SORT and the regulars. ST File includes a round up of ST adventures, a review of DUNGEONMASTER, hints on adventures and stacks of general games reviews.



DISK AVAILABLE - includes TWO BONUS ADVENTURES only to be found on this disk.

ISSUE 36 - Another cracking machine language game from Paul Lay called STAR RIDER plus HEADBANGER, also in machine code, MUSIC BOX and SYNTH II to type in. MAPPING YOUR ADVENTURE shows you how to succeed in adventures, 850 SPLIT reveals secrets about the 850 interface, DESIGNER KEYS allows you to customise the keyboard. Then there's BEGINNER'S BASIC plus a new series on TURBO BASIC, reviews of MERAK, Draconus, Joe Blade and more. For the ST we have B BOOT to allow you to boot from drive B, STOS reviewed, TRIP-A-TRON, SPELLBOOK, SUPERBASE PROFESSIONAL all reviewed and you can find how to never get lost again with AUTOROUTE. All this plus much, much more.



DISK AVAILABLE - includes BONUS MACHINE CODE UTILITY to add 128 colours to Atari Artist or Micropainter pictures.

ISSUE 37 - Some excellent listings including SCROLLY TEXT EDITOR, a superb utility for creating scrolling messages on the XL/XE just like those on the ST, plus BLASTCOM, a fast and furious blast 'em up, and SUNPLOTTER which shows you the position of the sun and times anywhere in the world. Also FINDER for searching your programs, the first part of MACHINE CODE LIBRARY and the CASSETTE DATABASE. Loads of reviews, as usual, including SpartaDos X. ST File includes the first part in the MIDI series and coverage of PROTEXT and FLAIR PAINT plus reviews of HEADCOACH (where have you seen that reviewed elsewhere?), SPRITE MASTER and a whole host of games. Lot's more besides.



DISK AVAILABLE - includes BONUS program UNDER STARTERS ORDERS, a superb horse racing game for all the family

ISSUE 38 - A super educational program, MCQ-TEST, for revision, homework or fun. The MACHINE CODE library looks at saving and loading memory, a utility lists a REAL TIME CLOCK for your XL or XE and THE PODZ is a great scrolling game. There are several more listings. The TIPSTER begins and articles include THE GAMES THEY NEVER RELEASED and more on Turbo Basic. ST owners can enjoy type-in routines for graphics, reviews of MINIX, FUN SCHOOL 2, POLICE QUEST II plus loads of games. The MIDIots guide continues and John Sweeney looks at KINGS QUEST and LEISURE SUIT LARRY.



DISK AVAILABLE - includes GALACTIC CRESTA a BONUS MACHINE CODE GAME previously released commercially!

ISSUE 39 - The first type-in fishing game for the Atari, CATCH DAY, heads the way with MOUSE PARTY and a NUMERICAL CONVERSIONS UTILITY also to type in. Other features include PAGE MARSHAL, HAWKQUEST, the MACHINE CODE LIBRARY on Player Missile Graphics plus, of course, THE TIPSTER and reviews of 8-bit games including STAR WARS. The ST section includes reviews of THE JADE STONE and DOMES OF SHA, the Midiot's guide to the SEQUENCER, a new column on STOS PROGRAMMING plus many, many reviews including GOLDRUSH and GALDREGON'S DOMAIN.



DISK AVAILABLE - includes PRO GOLF as a BONUS. Superb 18 hole action with all the options plus a construction kit to build your own courses

ISSUE 40 - Read all about Sublogic, the company that brought Flight Simulation to the Atari. Programs include SHIFT IT, a mind boggling sliding puzzle game and MEAN MOTOR for fast racing. A simple educational program is LEARN TO READ which you can easily adapt and K-TYPE will improve your touch typing. All these plus the Machine Code Library, Cassette Database, The Tipster and much more. For ST fans the STOS column has type in listings and there are reviews of ARMADA, JET, BATTLETECH and many more. Also the final part in the Midiot's Guide to Music.



DISK AVAILABLE - includes BONUS machine language game GRIDWARS

ISSUE 41 - Some neat 8-bit utilities including LISTIF, a new command for Basic and LC10DUMP for the Star colour printer. Games include Bill Halsall's great SNAKES ALIVE for up to twenty players! PICMATICS is a nice educational program to teach maths and articles include the MACHINE CODE LIBRARY, CONFESSIONS OF AN ADVENTURE ADDICT and more. ST users can enjoy reviews of INDIANA JONES, POSTMAN PAT, HISOFT C, DEMON'S WINTER and many, many more. There is also the first instalment of MAKING MUSIC and, of course, THE STOS COLUMN complete with type in game.



DISK AVAILABLE - includes DOUBLE BONUS of TRAKSTAR and BLOKHEAD. Two great machine language games

ISSUE 42 - Cheat at cassette games with the TAPESTER, play games with TO THE RESCUE and HOT ROD RAIDER. Expand your programming knowledge with MULTI-MOUSE, MACHINE CODE LIBRARY and HEXSAVER. Plus three pages of THE TIPSTER (including the solution to Quest For Eternity), lots of reviews and TURBO BASIC. ST owners can enjoy reviews of NEODESK, SCAPEGHOST and a host of games together with the regular Music Column and our STOS COLUMN with type-in programs.



DISK AVAILABLE with BONUS game BRIK-BAT, a classic machine language program

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where to find support for your Atari

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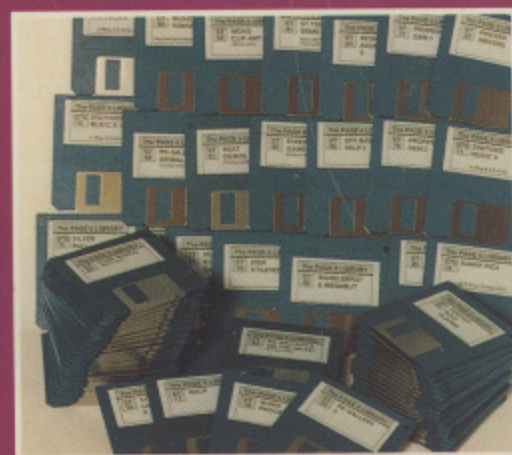
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